MDS-JA333ES

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model

Self Diagnosis
Supported model

Photo : GOLD

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Model Name Using Similar Mechanism	MDS-JA555ES
MD Mechanism Type	MDM-6J
Base Unit Type	MBU-5J
Optical Pick-up Type	KMS-260B/J1N

SPECIFICATIONS

System	MiniDisc digital audio system
Disc	MiniDisc
Laser	Semiconductor laser (λ = 780 nm) Emission duration: continuous
Laser output	MAX 44.6 μW1) *1) This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with 7 mm aperture.*
Laser diode	Material: GaAlAs
Revolutions (CLV)	400 rpm to 900 rpm
Error correction	ACIRC (Advanced Cross Interleave Reed Solomon Code)
Sampling frequency	44.1 kHz
Coding	ATRAC (Adaptive TRansform Acoustic Coding)/ATRAC 3
Modulation system	EFM (Eight-to-Fourteen Modulation)
Number of channels	2 stereo channels
Frequency response	5 to 20,000 Hz ±0.3 dB
Signal-to-noise ratio	Over 100 dB during play
Wow and flutter	Below measurable limit

Inputs

ANALOG IN	Jack type: phono Impedance: 47 k Ω Rated input: 500 mVrms Minimum input: 125 mVrms
DIGITAL IN OPT1	Connector type: square optical Impedance: 660 nm (optical wave length)
DIGITAL IN OPT2	Connector type: square optical Impedance: 660 nm (optical wave length)
DIGITAL IN COAXIAL	Jack type: phono Impedance: 75 Ω Rated input: 0.5 Vp-p, ±20 %

Outputs

PHONES	Jack type: stereo phone Rated output: 28 mW Load impedance: 32 Ω
ANALOG OUT	Jack type: phono Rated output: 2.5 Vrms (at 50 k Ω) Load impedance: over 10 k Ω

— Continued on next page —

MINIDISC DECK

SONY®

DIGITAL OUT OPTICAL

Connector type: square optical
Rated output: –18 dBm
Load impedance: 660 nm (optical wave length)

DIGITAL OUT COAXIAL

Jack type: phono
Rated output: 0.5 Vp-p (at 75 Ω)
Load impedance: 75 Ω

General

Power requirements

Where purchased	Power requirements
US, Canadian	120 V AC, 60 Hz
AEP, UK	230 V AC, 50/60 Hz

Power consumption	20 W
Dimensions (approx.)	430 × 123.5 × 375.5 mm (17 × 4 $^{7}/_{8}$ × 14 $^{7}/_{8}$ in.) (w/h/d) incl. projecting parts and controls
Mass (approx.)	10.5 kg (23 lbs 15 oz)

Supplied accessories

- Audio connecting cords (2)
- Optical cable (1)
- Remote commander (remote) (1)
- R6 (size-AA) batteries (2)

Design and specifications are subject to change without notice.

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the equipment manufacturer.
Discard used batteries according to manufacture’s instructions.

ADVARSEL!

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

ADVARSEL

Eksplosjonsfare ved feilakting skifte av batteri.
Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten.
Brukte batterier katterier kasseres i henhold til fabrikantens

VARNIG

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en likvärdig typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt gällande föreakrifter.

VAROITUS

Parist voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.
Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:
Check the antenna terminals, metal trim, “metallized” knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers’ instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The “limit” indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

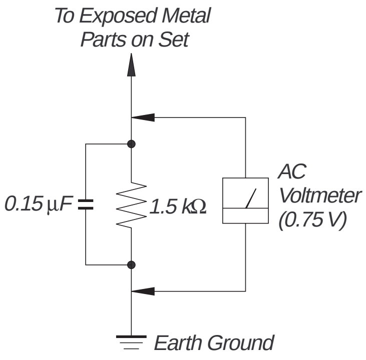


Fig. A. Using an AC voltmeter to check AC leakage.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈSES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPÉMENTS PUBLIÉS PAR SONY.

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

The following caution label is located inside the unit.

CAUTION	;	INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ADVARSEL	;	USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDS ÆTTELSE FOR STRÅLING.
VARO!	;	AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA LASERSÄTEILYLLE.
VARNING	;	LASERSTRÅLING NÄR DENNA DEL ÄR OPPNÅD OCH SPÄRREN ÄR URKOPPLAD.
ADVARSEL	;	USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

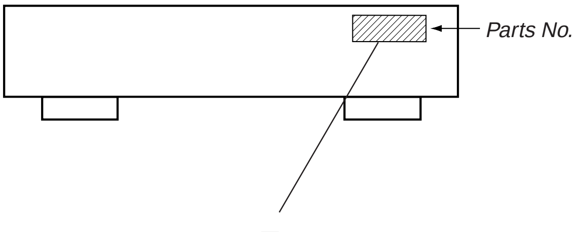
Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

- Keep the temperature of soldering iron around 270˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

MODEL IDENTIFICATION
— BACK PANEL —



4-228-930-1☐ : AEP, UK model
4-228-930-2☐ : US model
4-228-930-3☐ : Canadian model

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SELF-DIAGNOSIS FUNCTION

The self-diagnosis function consists of error codes for customers which are displayed automatically when errors occur, and error codes which show the error history in the test mode during servicing. For details on how to view error codes for the customer, refer to the following box in the instruction manual. For details on how to check error codes during servicing, refer to the following “Procedure for using the Self-Diagnosis Function (Error History Display Mode)”.

The deck’s self-diagnosis function automatically checks the condition of the MD deck when an error occurs, then issues a three- or five-digit code and an error message on the display. If the code and message alternate, find them in the following table and perform the indicated countermeasure. Should the problem persist, consult your nearest Sony dealer.

Three- or five-digit code/ Message	Cause/Remedy
C11/Protected	The inserted MD is record-protected. Take out the MD and close the record-protect slot.
C12/Cannot Copy	You tried to record a CD with a format that the external device connected to the deck does not support, such as CD-ROM or video CD. Remove the disc and insert a music CD.
C13/REC Error	The recording was not made properly. Set the deck in a stable surface, and repeat the recording procedure.
	The inserted MD is dirty (with smudges, fingerprints, etc.), scratched, or substandard in quality. Replace the disc and repeat the recording procedure.
C13/Read Error	The deck could not read the TOC on the MD properly. Take out the MD and insert it again.
C14/Toc Error	The deck could not read the TOC on the MD properly. Insert another disc. If possible, erase all the tracks on the MD.
C41/Cannot Copy	The sound source is a copy of commercially available music software, or you tried to record a CD-R (Recordable CD). The Serial Copy Management System prevents making a digital copy. You cannot record a CD-R.
C71/Din Unlock	The sporadic appearance of this message is caused by the digital signal being recorded. This will not affect the recording.
	While recording from a digital component connected through the DIGITAL IN connector, the digital connecting cable was unplugged or the digital component turned off. Connect the cable or turn the digital component back on.
E0001/ MEMORY NG	There is an error in the internal data that the deck needs in order to operate. Consult your nearest Sony dealer.
E0101/ LASER NG	There is a problem with the optical pickup. The optical pickup may have failed. Consult your nearest Sony dealer.

PROCEDURE FOR USING THE SELF-DIAGNOSIS FUNCTION (ERROR HISTORY DISPLAY MODE)

Note: Perform the self-diagnosis function in the “error history display mode” in the test mode. The following describes the least required procedure. Be careful not to enter other modes by mistake. If you set other modes accidentally, press the [MENU/NO] button to exit the mode.

1. While pressing the [|◁◁ AMS ▷▷|] knob and [■] button, connect the power plug to the outlet, and release the [|◁◁ AMS ▷▷|] knob and [■] button. When the test mode is set “[Check]” is displayed.
2. Turn the [|◁◁ AMS ▷▷|] knob and when “[Service]” is displayed, press the [YES] button.
3. Turn the [|◁◁ AMS ▷▷|] knob to display “Err Display”.
4. Press the [YES] button to sets the error history mode and displays “op rec tm”.
5. Select the contents to be displayed or executed using the [|◁◁ AMS ▷▷|] knob.
6. Press the [|◁◁ AMS ▷▷|] knob to display or execute the contents selected.
7. Press the [|◁◁ AMS ▷▷|] knob another time to return to step 4.
8. Press the [MENU/NO] button to display “Err Display” and release the error history mode.
9. To release the test mode, press the [REPEAT] button. The unit sets into the STANDBY state and the test mode ends.

[ITEMS OF ERROR HISTORY MODE ITEMS AND CONTENTS]

Display	Details of History
op rec tm	Displays the total recording time. When the total recording time is one minute or longer, displays the time and minute. When the total recording time is less than one minute, displays “Under 1 min”. The displayed time is about 1/4 of the actual recording time when the laser is set to the high power state.
op play tm	Displays the total playback time. When the total playback time is one minute or longer, displays the time and minute. When the total playback time is less than one minute, displays “Under 1 min”.
spdl rp tm	Displays the total time when the spindle motor rotates. When the total rotation time is one minute or longer, displays the time and minute. When the total rotation time is less than one minute, displays “Under 1 min”.
retry err	Displays the total number of retries during recording and number of retry errors during playback. Displayed as “r xx p yy”. “xx” indicates the number of retries during recording, “yy” indicates the number of retry errors during playback. The numbers are displayed in hexadecimal from 00 to FF.
total err	Displays the total number of errors. Displayed as “total xx”. The number is displayed in hexadecimal from 00 to FF.
err history	Displays the last ten errors. Displayed as “0x ErrCd@@”. “x” indicates the history number. A smaller number indicates a more recent error (00 is the latest). @@ indicates the error code. The error history number is selected by turning the |◁◁ AMS ▷▷| knob.
retry adrs	Displays the last five retry addresses. Displayed as “xx ADRS yyyy”. “xx” indicates the history number. “yyyy” indicates the cluster where the retry occurred. The history number is selected by turning the |◁◁ AMS ▷▷| knob.
er refresh	Mode which erases the error history and the retry address history [Operation procedure] ① When “er refresh” is displayed, press the |◁◁ AMS ▷▷| knob. ② After the display changes to “er refresh?”, press the YES button. The “Complete!” message indicates that the operation has ended. After executing this mode, be sure to check the following: • The data has been erased. • The mechanism runs normally when recording and playback are performed.
op change	Mode which erases the total time of “op rec tm” and “op play tm” These histories are used as a guideline for the time to replace the optical pick-up. After replacing the optical pick-up, perform this operation to erase the history. [Operation procedure] ① When “op change” is displayed, press the |◁◁ AMS ▷▷| knob. ② After the display changes to “op change?”, press the YES button. The “Complete!” message indicates that the operation has ended.
spdl change	Mode which erases the total time of “spdl rp tm” The history is used as a guideline for the time to replace the spindle motor. After replacing the spindle motor, perform this operation to erase the history. [Operation procedure] ① When “spdl change” is displayed, press the |◁◁ AMS ▷▷| knob. ② After the display changes to “spdl change?”, press the YES button. The “Complete!” message indicates that the operation has ended.

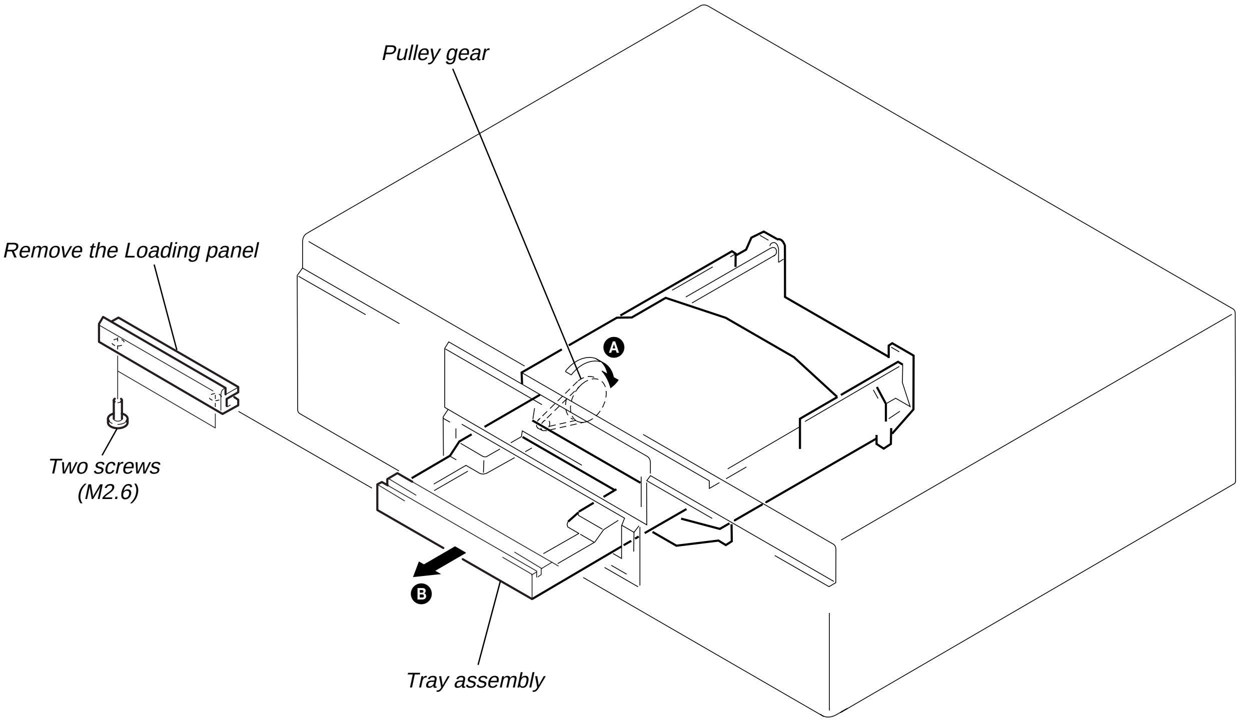
Table of Error Codes

Error Code	Details of Error	Error Code	Details of Error
10	Loading error	31	There is an abnormality in the sector contents.
12	The combination of loading switches is not acceptable.	40	An error caused a retry during continuous recording.
20	Time out. The beginning of PTOC cannot be read.	41	Retry was executed due to DRAM overflow.
21	Contents error. The beginning of PTOC can be read.	42	Retry was executed during TOC writing.
22	Time out. Access to UTOC failed.	43	S.F Edit was aborted due to retry.
23	Time out. UTOC cannot be read.	50	Address cannot be read although access processing is not in progress.
24	Contents error of UTOC		
30	Playback start error	51	Runaway due to focus NG

SECTION 1
SERVICING NOTE

HOW TO OPEN THE DISC TRAY WHEN POWER SWITCH IS TURNED OFF, AND LASER POWER CHECK

① Remove the 16 screws (BVTT3 x 8) from the bottom plate. (Refer to Section 3 “Disassembly” Loading panel.)
② Remove the bottom plate.
③ Rotate the pully gear in the direction of the arrow Ⓐ and open the tray in the direction of the arrow Ⓑ.
④ When checking the laser power, remove beforehand the loading panel by removing the two screws (M2.6) and sliding aside the loading panel becouse the cable of the laser power meter can be pinched by the loading panel. (Refer to Section 3 “Disassembly” Loading panel.)



Forced Reset

Use this function when the MDS-JA333ES cannot be operated normally due to hung-up of the microprocessor.
It is recommended to use this function when you cannot exit the test mode or the retry-cause-display mode, or when the normal operation cannot be performed after the MDS-JA333ES is disassembled once then re-assembled.

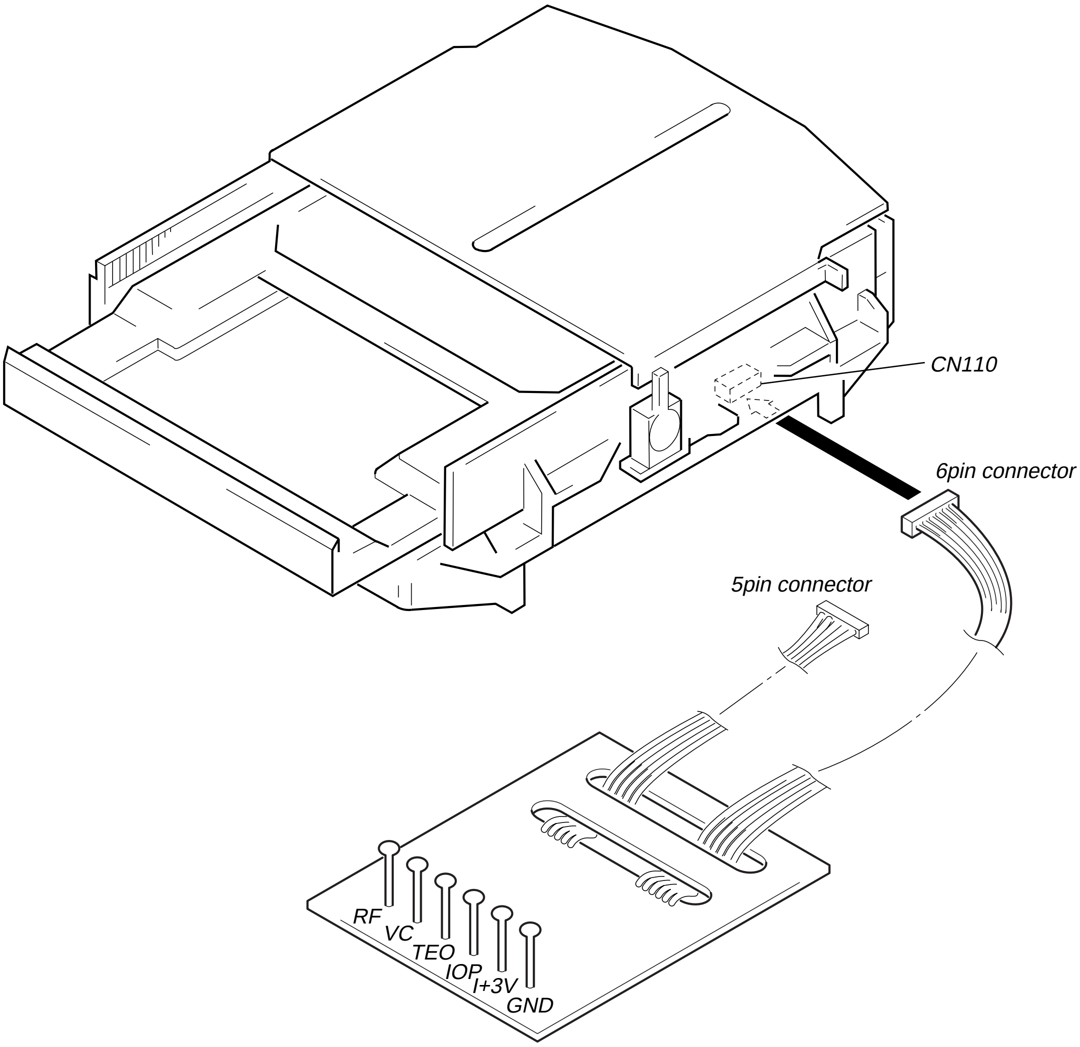
To inspect the printed circuit boards, use the following jigs.

• Extension jig to inspect the DIG board
Jig for extension between DIG board CN801 and DA board CN501 Part code number: J-2501-075-A 1 pc 21 pins with 1 mm
Jig for extension between DIG board CN807 and FL board CN701 Part code number: J-2501-199-A 1 pc 21 pins with 1 mm
• Extension jig to inspect the AD board
Jig for extension between DIG board CN802 and AD board CN301 Part code number: J-2501-200-A 1 pc 11 pins with 1 mm

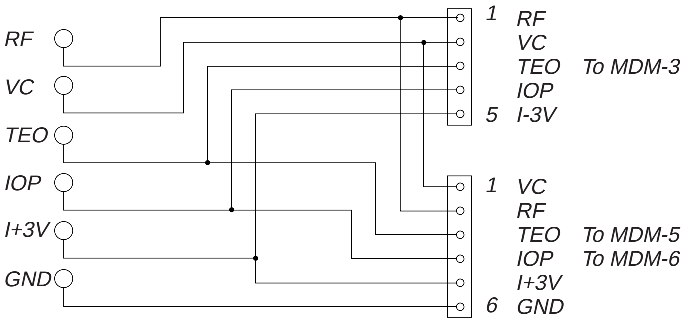
[BD Board Waveform Check Tool]

Use of the exclusive tool (J-2501-149-A) is convenient to check the waveforms on the BD board.

GND : Ground terminal
I+3V : For measuring IOP (Checking deterioration of the optical pick-up laser)
IOP : For measuring IOP (Checking deterioration of the optical pick-up laser)
TEO : TRK error signal (traverse adjustment)
VC : Reference level for when checking signals
RF : RF signal (jitter check)


CN110
6pin connector
5pin connector
RF
VC
TEO
IOP
I+3V
GND

Schematic diagram of the connecting tools


RF
VC
TEO
IOP
I+3V
GND
1
5
RF
VC
TEO
IOP
I-3V
To MDM-3
1
6
VC
RF
TEO
IOP
I+3V
GND
To MDM-5
To MDM-6

[How to Record and Display the IOP Data When Replacing the Optical Pick-up and Non-volatile Memory (BD Board IC171)]

The IOP data that is indicated on the optical pick-up, can be saved in the non-volatile memory of the MDS-JA333ES. Saving the IOP data in the memory eliminates the needs to look at the printed value on the label that is attached on the surface of optical pick-up, and enables to view the IOP data on display. When the optical pick-up is replaced or when the non-volatile memory (IC171 on BD board) is replaced, save the IOP value that is printed on the label on the surface of optical pick-up by the following procedure.

How to Record the IOP Data:

1. While pressing the |◁◁AMS▷▷| knob and the ■ button at the same time, connect the AC power plug to the wall outlet, then remove your hands from the |◁◁AMS▷▷| knob and ■ button at the same time. When the MDS-JA333ES enters the test mode, the message "[Check]" appears.
2. Rotate the |◁◁AMS▷▷| knob until the message "Service" appears. Then press the YES button.
3. Rotate the |◁◁AMS▷▷| knob until the message "Iop Write" (C05) appears. Then press the YES button.
4. "Ref=@@@.@" (@ is arbitrary number) appears and the values that can be changed as desired flash.
5. Input the IOP value that is printed on the optical pick-up.
   Selection of alphanumeric characters : Rotate the |◁◁AMS▷▷| knob.
   Selection of digit : Press the |◁◁AMS▷▷| knob.
6. Press the YES button. Then display changes to "Measu= @@@.@" (@ is arbitrary number).
7. The value that is shown step 6, is the result adjustment and should not be saved. So leave the value of step 6 as it is, and press the YES button.
8. The message "Complete!" appears for a moment, and the value is saved in the non-volatile memory. The message "Iop Write" (C05) appears.
9. Upon completion of data saving, press the REPEAT button.

How to Display the IOP Data:

1. While pressing the |◁◁AMS▷▷| knob and the ■ button at the same time, connect the AC power plug to the wall outlet, then remove your hands from the |◁◁AMS▷▷| knob and ■ button at the same time. When the MDS-JA333ES enters the test mode, the message "[Check]" appears.
2. Rotate the |◁◁AMS▷▷| knob until the message "Service" appears. Then press the YES button.
3. Rotate the |◁◁AMS▷▷| knob until the message "Iop Write" (C05) appears. Then press the YES button.
4. The message "@@.@/##.#" appears. The contents that are saved in the non-volatile memory appear.
   @@.@ : The IOP value that is printed on optical pick-up
   ##.# : The IOP value after adjustment
5. To exit the data display, press the |◁◁AMS▷▷| knob or the MENU/NO button to show the message "Iop Read" (C26). Then press the REPEAT button.

[Checks before Part Replacement and Adjustment]

Cause of faulty can be approximately located by performing the following checks before starting the repair work. Refer to Section “5. Electrical Adjustment” the check procedure.

	Judgment criterion(NG when the measurement value is out of the specification value)	Remedial measure in case of NG
Laser power check (Refer to section 5-6-2.)	• 0.9 mW power Specification value: 0.8 to 0.96 mW • 6.2 mW power Specification value: 6.0 to 6.4 mW	• Cleaning the optical pick-up • Readjustment • Replacing the optical pick-up
	• Iop (when 7 mW) The Iop value that is shown on the optical pick-up: +/- 4 mA	• Replacing the optical pick-up
Traverse check (Refer to section 5-6-3.)	• Traverse waveform Specification value: Offset 5% or less	• Replacing the optical pick-up
Focus bias check (Refer to section 5-6-4.)	• Checking the error rate Specification value: All points of a and b CI error 220 or less AD error 2 or less	• Replacing the optical pick-up
C PLAY check (Refer to section 5-6-5.)	• Checking the error rate Specification value: a. When using the test disc (MDW-74/AU-1) CI error 50 or less AD error 2 or less b. When using the check disc (TDYS-1) CI error 20 or less	• Replacing the optical pick-up
Self record/playback check (Refer to section 5-6-6.)	• Checking the error rate in C PLAY Specification value: CI error 50 or less AD error 2 or less	In case of NG all the time: • Replacing the overwrite head • Check disconnection of the circuits around the overwrite head
		In case of intermittent NG: • Check deformation of overwrite head • Check mechanism around the sled
Temperature compensation offset check (Refer to section 5-6-1.)	• NG when “T=@@(##)(NG” appears (@@ and ## are arbitrary numbers.)	• Check disconnection of the circuits around the D101 (BD board) • Check signals around the IC101, IC121, CN102 and CN103 (BD board)

Note: The judgment criterion is shown for the purpose of judging if the performance is acceptable or not. This is not the specification value for adjustment. Use the specification value for adjustment when the MDS-JA333ES is going to be adjusted.

[Retry Cause Display Mode]

- In this test mode, the retry causes of the MDS-JA333ES during record and stop modes can be displayed on the fluorescent display tube.
  This mode becomes the “track mode” during playback in which the track information is available.
  This mode is useful for locating the defective area of the MDS-JA333ES.
- The contents to be displayed are as follows.
  During record and stop modes: Retry cause, number of retries, and number of retry errors
  During playback mode: Information such as disc types under playing back, position of playback and copyright.
  Each information is displayed in hexadecimal number.

Procedure:

1. Load a recordable disc whose contents can be erased, into the MDS-JA333ES.
2. Press the MENU/NO button. After the message “Edit Menu” appears on the fluorescent display tube, rotate the |◁◁AMS▷▷| knob until the message “All Erase ?” appears.
3. Press the YES button. (Alternately the |◁◁AMS▷▷| knob can also be pressed.)
4. The message “All Erase ?” appears on the fluorescent display tube. Then the numerals on the music calendar flash.
5. Press the YES button, then the message “Complete !” appears. Press the ■ button immediately, and wait for about 15 seconds while keeping pressing the button. (Alternately the |◁◁AMS▷▷| knob can be pressed instead of YES button.)
6. When the characters “TOC” have disappeared from the fluorescent display tube, remove your hands from the ■ button.
7. Press the ●REC button to enter the record standby mode. Then press the ❚❚ button to start recording.
8. When you want to enter the “Track mode”, press the ▶ button to start playback.
9. To exit the test mode, press the I/⏻ button. The message “TOC” flashes, the MDS-JA333ES enters the standby mode and exits the test mode.

Fig. 1 Reading the Test Mode Display (During record and stop modes)

RTs@@c##e**

Display on the fluorescent display tube

@@ : Cause of retry
## : Number of retries
** : Number of retry errors

Fig. 2 Reading the Test Mode Display (During playback)

@@ ####** $$

Display on the fluorescent display tube

@@ : Parts No. (Area name that is given on the TOC)
## : Cluster address (physical address on the disc)
** : Sector
$$: Track mode (track information such as copyright information of each part, etc.)

How to read the retry cause display:

	Higher Bits				Lower Bits				Hexadecimal	Name of retry cause	When 1
Hexadecimal	8	4	2	1	8	4	2	1			
Bit	b7	b6	b5	b4	b3	b2	b1	b0			
Binary number	0	0	0	0	0	0	0	1	01	shock	When track jump (shock) is detected
	0	0	0	0	0	0	1	0	02	ader5	When ADER is counted five times or more continuously
	0	0	0	0	0	1	0	0	04	Address is not continuous	When ADIP address is not continuos
	0	0	0	0	1	0	0	0	08	DIN unlock	Detects DIN unlock is detected
	0	0	0	1	0	0	0	0	10	FCS unlock	When focus is unlocked
	0	0	1	0	0	0	0	0	20	IVR rec error	When signal level of the ABCD signal exceeds the specified range
	0	1	0	0	0	0	0	0	40	CLV unlock	When CLV is unlocked
	1	0	0	0	0	0	0	0	80	Access fault	When access operation is not performed normally

Reading the Display:

Convert the hexadecimal display of each digit into binary display. If more than two causes, they will be added.

Example When 42 is displayed:
Higher bit: 4 = 0100 → b6
Lower bit: 2 = 0010 → b1
In this case, the retry cause is combined of “CLV unlock” and “ader5”.

Example When A2 is displayed:
Higher bit: A = 1010 → b7+b5
Lower bit: 2 = 0010 → b1
In this case, the retry cause is combined of “Access fault”, “IVR rec” and “ader5”.

The reading of the track mode display is as follows.

	Higher Bits				Lower Bits				Hexa-decimal	Details	
Hexadecimal	8	4	2	1	8	4	2	1		**When 0**	**When 1**
Bit	b7	b6	b5	b4	b3	b2	b1	b0			
Binary	0	0	0	0	0	0	0	1	01	Emphasis OFF	Emphasis ON
	0	0	0	0	0	0	1	0	02	Monaural	Stereo
	0	0	0	0	0	1	0	0	04	This is 2-bit display. Normally 01. 01:Normal audio. Others:Invalid	
	0	0	0	0	1	0	0	0	08		
	0	0	0	1	0	0	0	0	10	Audio (Normal)	Invalid
	0	0	1	0	0	0	0	0	20	Original	Digital copy
	0	1	0	0	0	0	0	0	40	Copyright exists	No copyright
	1	0	0	0	0	0	0	0	80	Write prohibited	Write is allowed

Reading the Display:

Convert the hexadecimal display of each digit into binary display. The several causes are added and displayed.

Example When 84 is displayed:
Higher bit: 8 = 1000 → b7
Lower bit: 4 = 0100 → b2
This example shows that “Emphasis: OFF”, “Monaural”, “Original”, “Copyright exists” and “Writing is allowed” because b2 and b7 are 1 while all other bits are 0.

Example When 07 is displayed:
Higher bit: 0 = 0000 → all 0
Lower bit: 7 = 0111 → b0+b1+b2
This example shows that “Emphasis: ON”, “Stereo”, “Original”, “Copyright exists” and “Writing is prohibited” because b0, b1 and b2 are 1 while all other bits are 0.

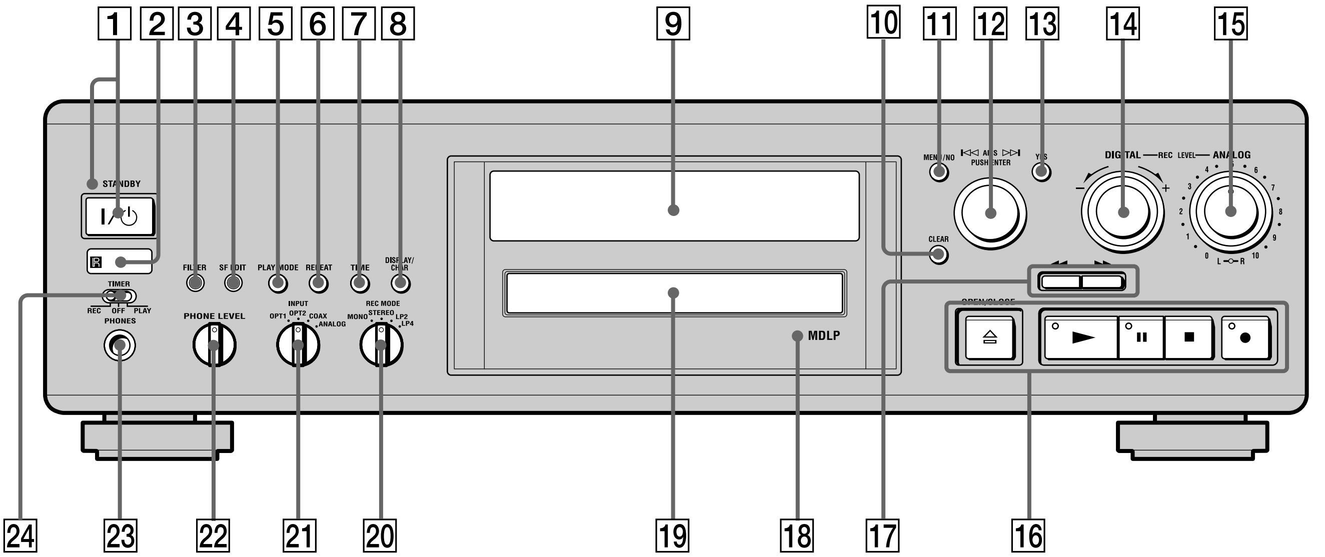
Hexadecimal → Binary Conversion Table

Hexadecimal	Binary	Hexadecimal	Binary
0	0000	8	1000
1	0001	9	1001
2	0010	A	1010
3	0011	B	1011
4	0100	C	1100
5	0101	D	1101
6	0110	E	1110
7	0111	F	1111

SECTION 2
GENERAL

This section is extracted from instruction manual.

Front panel description


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
STANDBY
I/⏻
TIMER
REC OFF PLAY
PHONES
FILTER
SF EDIT
PLAY MODE
REPEAT
TIME
DISPLAY/CHAR
PHONE LEVEL
INPUT
OPT1 OPT2 COAX ANALOG
REC MODE
MONO STEREO LP2 LP4
MDLP
MENU/NO
AMS PUSH ENTER
YES
CLEAR
DIGITAL REC LEVEL ANALOG
OPEN/CLOSE
24
23
22
21
20
19
18
17
16

1 **I/⏻ (power) switch/STANDBY indicator (14) (23)**
Press to turn on the deck. When you turn on the deck, the STANDBY indicator turns off. When you press the switch again, the deck turns off and the indicator lights up.

2 **Remote sensor (10)**
Point the remote toward this sensor (🅁) for remote operations.

3 **FILTER button (43)**
Press to select the type of the digital filter.

4 **S.F EDIT button (38)**
Press to change the recorded level after recording.

5 **PLAY MODE button (27) (42)**
Press to select Shuffle Play or Program Play or resume normal play.

6 **REPEAT button (26)**
Press to play tracks repeatedly.

7 **TIME button (18) (22)**
Press to display the remaining time.

8 **DISPLAY/CHAR button (9) (15) (17) (24) (27) (35)**

Press while the deck is	To
Recording or recording pause	Adjust the recording level
Stopped	Display disc information or the contents of a program
Recording	Display information on the track being recorded
Playing	Display information on the current track
Editing	Select the type of characters to be input

9 **Display window (8)**
Shows various information.

10 **CLEAR button (27) (35)**
Press to cancel the selection.

11 **MENU/NO button (19) (27) (30) (39) (52)**
Press to display the Edit Menu or Setup Menu.

12 **AMS control (12) (14) (23) (30) (39)**
Turn to locate tracks, set the clock, select the input characters, or select a menu item and a setting value.

13 **YES button (18) (27) (30) (39)**
Press to carry out the selected operation.

14 **DIGITAL REC LEVEL control (17)**
Turn to adjust the digital recording level.

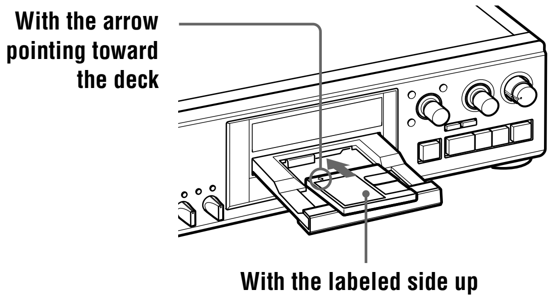
15 **ANALOG REC LEVEL L/R control (18)**
Turn to adjust the analog recording level.

16 **OPEN/CLOSE A button (14) (23)**
Press to insert or eject the MD.
► button (14) (23)
Press to start play.
II button (14) (23)
Press to pause play or recording. Press again to resume play or recording.
■ button (15) (23)
Press to stop play or recording, or cancel the selected operation.
● button (14) (18) (19)
Press to record to the MD, monitor the input signal, or mark track numbers.

17 **◄◄ / ►► buttons (25) (27) (30) (35)**
Press to locate a portion within a track, change the contents of a program, or change the input character.

18 **MDLP indicator (16) (23)**
Lights when the deck is playing or recording to an MD in LP2 or LP4 Stereo mode.

19 **MD disc tray (14) (23)**
Insert an MD as illustrated below.


With the arrow pointing toward the deck
With the labeled side up

20 **REC MODE selector (16)**
Use to set the REC MODE to STEREO, MONO, LP2 or LP4.

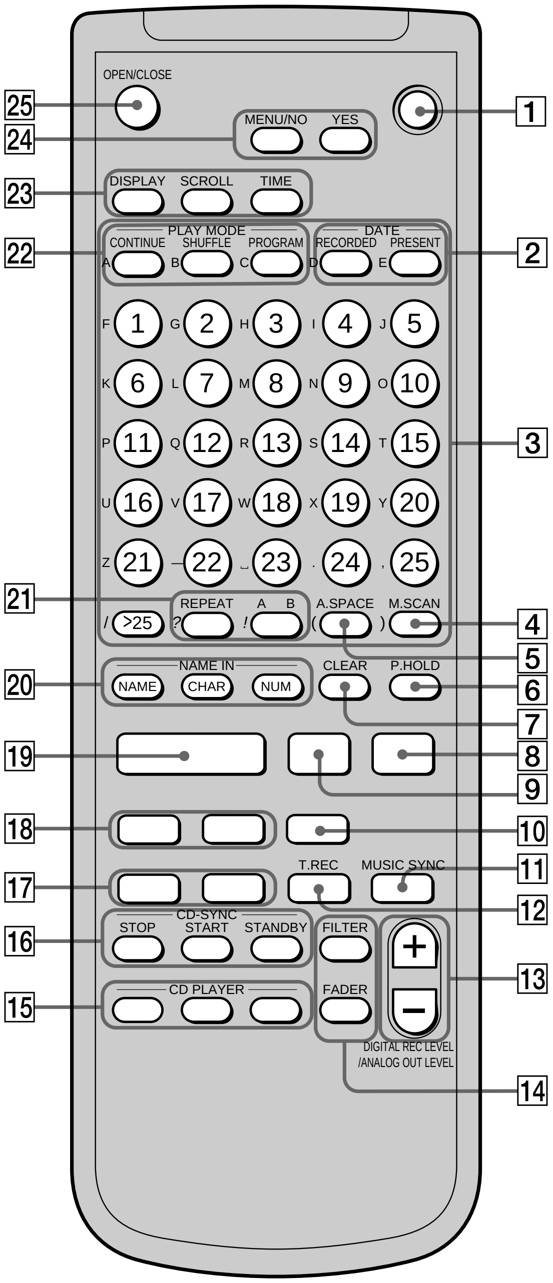
21 **INPUT selector (14)**
Use to select the input jack (or connector) of the program source to be recorded.

22 **PHONE LEVEL control (23)**
Turn to adjust the volume of the headphones.

23 **PHONES jack (23)**
Connect headphones to this jack.

24 **TIMER selector (42)**
Use to set the timer for recording (REC) or playing (PLAY). Set to OFF to turn off the timer.

Remote control description


OPEN/CLOSE
MENU/NO
YES
DISPLAY
SCROLL
TIME
PLAY MODE
CONTINUE
SHUFFLE
PROGRAM
DATE
RECORDED
PRESENT
REPEAT
A
B
A.SPACE
M.SCAN
>25
NAME IN
NAME
CHAR
NUM
CLEAR
P.HOLD
T.REC
MUSIC SYNC
CD-SYNC
STOP
START
STANDBY
FILTER
FADER
CD PLAYER
DIGITAL REC LEVEL
/ANALOG OUT LEVEL
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

1 **I/⏻ (power) switch (14) (23)**
Press to turn on the deck. When you turn on the deck, the STANDBY indicator on the deck turns off. When you press the switch again, the deck turns off and the indicator lights up.

2 **DATE RECORDED button (13)**
Press to display the recording date and time.
DATE PRESENT button (13)
Press to display the current date and time.

3 **Letter/number buttons (24) (35)**
Press to input letters or numbers or select a track.

4 **M.SCAN button (24)**
Press to scan a track within a range of 6 to 20 seconds.

5 **A.SPACE button (29)**
Press to insert a three-second blank space between tracks or to pause play after each track.

6 **P.HOLD button (18)**
Press to turn on and off the Peak Hold Function.

7 **CLEAR button (27) (35)**
Press to cancel the selection.

8 **■ button (15) (23)**
Press to stop play or recording, or cancel the selected operation.

9 **❚❚ button (14) (23)**
Press to pause play or recording. Press again to resume play or recording.

10 **■ button (14) (18) (19)**
Press to record to the MD, monitor the input signal, or mark track numbers.

11 **MUSIC SYNC button (21)**
Press to start Music Synchro-recording.

12 **T.REC button (20)**
Press to start Time Machine Recording.

13 **DIGITAL REC LEVEL/ANALOG OUT LEVEL +/– buttons (17) (23)**
Press to adjust the digital recording or analog output level.

14 **FILTER button (43)**
Press to select the type of the digital filter.
FADER button (40)
Press to perform Fade-in Play/Recording or Fade-out Play/Recording.

15 **CD PLAYER ❚❚ button (21)**
Press to pause the CD play. Press again to resume CD play.
CD PLAYER ⏮ / ⏭ buttons (21)
Press to locate tracks on the CD.

16 **CD-SYNC STOP button (21)**
Press to stop CD Synchro-recording.
CD-SYNC START button (21)
Press to start CD Synchro-recording.
CD-SYNC STANDBY button (21)
Press to enter standby for CD Synchro-recording.

17 **◀◀ / ▶▶ buttons (25) (27) (30) (35)**
Press to locate a portion within a track, change the contents of a program, or shift the cursor to the right.

18 **⏮ / ⏭ buttons (14) (23) (31) (39)**
Press to locate tracks, or select a menu item and a setting value.

19 **▷ button (14) (23)**
Press to start play.

20 **NAME-IN buttons**
NAME button (35)
Press to add the name or change the name of a track or an MD.
CHAR button (35)
Press to select the type of characters to be input.
NUM button (35)
Press to input numbers.

21 **REPEAT button (26)**
Press to play tracks repeatedly.
A ←→ B button (26)
Press to select Repeat A-B Play.

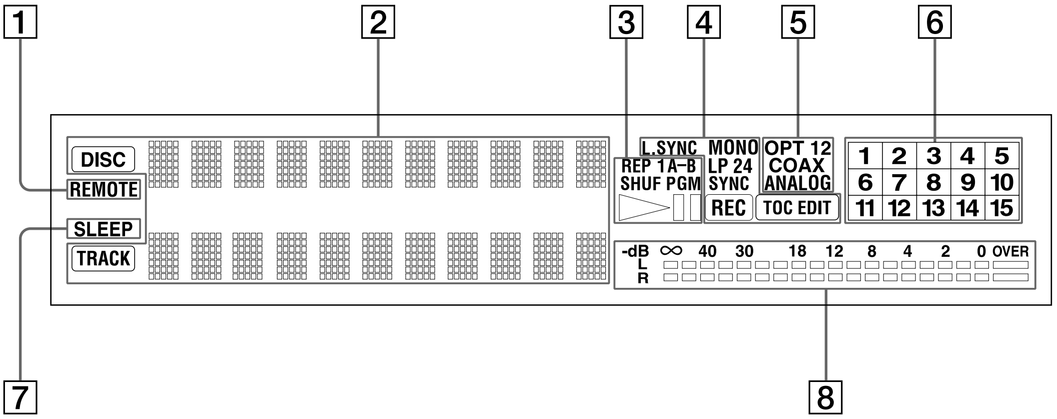
22 **PLAY MODE buttons**
CONTINUE button (27)
Press to select normal play.
SHUFFLE button (27)
Press to select Shuffle Play.
PROGRAM button (27)
Press to select Program Play.

23 **DISPLAY button (9) (15) (17) (24) (27)**
Press to select the information to be displayed in the window.
SCROLL button (24)
Press to scroll the name of a track or an MD.
TIME button (18) (21)
Press to display the remaining time.

24 **MENU/NO button (19) (27) (30) (39) (52)**
Press to display the Edit Menu or Setup Menu.
YES button (18) (27) (30) (39)
Press to carry out the selected operation.

25 **OPEN/CLOSE ⏏ button (14) (23)**
Press to insert or eject the MD.

Display window description



1 **REMOTE indicator**
Lights when the MD is being controlled by an external device connected to the deck.

2 **Disc name and track name indicators display**
DISC indicator
Lights when the disc information (etc.) is shown.
Name display
Displays disc and track names, Edit Menu parameters, and Setup Menu parameters (etc.).
The track name appears instead of the disc name during play. When the MD or the track has no name, “No Name” appears.
TRACK indicator
Lights when the track information (etc.) is shown.

3 **Playback indicators**
REP indicators (26)
Light when the deck is set to Repeat Play.
- “REP” lights when the deck is set to repeat the entire disc.
- “REP 1” lights when the deck is set to repeat just one track.
- “REP A-B” lights when the deck is set to repeat a specific portion within a track.

SHUF indicator (27)
Lights when the deck is set to Shuffle Play.
PGM indicator (27)
Lights when the deck is set to Program Play.
▷❚❚ indicator
Lights during playing or playing pause.

4 **Recording and editing indicators**
L.SYNC indicator (19)
Lights when the deck is set to assign track numbers automatically during analog recording.
Rec mode indicators (16)
These indicators turn off during stereo recording/playback.
- “MONO” lights when the deck is set to Monaural Recording mode or playing an MD recorded in Monaural Recording mode.
- “LP2” lights when the deck is set to LP2 Stereo Recording mode or playing an MD recorded in LP2 Stereo Recording mode.
- “LP4” lights when the deck is set to LP4 Stereo Recording mode or playing an MD recorded in LP4 Stereo Recording mode.

SYNC indicator (21)
Lights during synchro-recording.
REC indicator
Lights during recording.
TOC indicators (16) (31)
- “TOC” lights to indicate the presence of TOC data that has not been written to the disc. “TOC” flashes when the TOC data is being written.
- “TOC EDIT” lights during edit operations.

5 **INPUT indicators (14)**
- “OPT1” lights when the program source connected to the DIGITAL IN OPT1 connector is selected.
- “OPT2” lights when the program source connected to the DIGITAL IN OPT2 connector is selected.
- “COAX” lights when the program source connected to the DIGITAL IN COAXIAL jack is selected.
- “ANALOG” lights when the program source connected to the ANALOG IN jacks is selected.

6 **Music calendar**
Shows all the track numbers within a grid if the MD is a premastered disc, or without a grid if the MD is a recordable disc. If the total number of tracks exceeds 15, B appears to the right of number 15 in the music calendar.

7 **SLEEP indicator (41)**
Lights when the deck is set to turn off automatically after specified minutes.

8 **Level meters**
Display the audio signal levels during playing and recording.
Note
The display format that you have selected in each of the deck statuses (play, recording, etc.) will appear whenever the deck enters that status and you press DISPLAY/CHAR (or DISPLAY) or TIME until you change the format to another (see the following sections for details). If you disconnect the AC power cord, however, all the displays will revert to their default (i.e., the factory set display) the next time you turn on the deck.

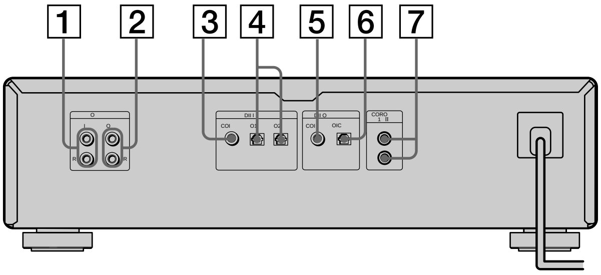
To change the display in stop mode
Press DISPLAY/CHAR (or DISPLAY) repeatedly to change the display.

Each press of the button changes the display as follows:

Total number of tracks, total recorded time and disc name1)
↓
The contents of a program (only when “PGM” lights up)
↓
Level of the input signal (setting value of the recording level)
↓
Pitch display
↓
DF (digital filter) display

1) “No Name” appears when the disc has no name.

Rear panel description



1 **ANALOG IN jacks (11) (14)**
Use to input analog signals from other components.

2 **ANALOG OUT jacks (11)**
Use to output analog signals to other components.

3 **DIGITAL IN COAXIAL jack (11) (14)**
Connect a digital coaxial cable to input digital signals from other components.

4 **DIGITAL IN OPT connectors (11) (14)**
Connect a digital optical cable to input digital signals from other components. There is no distinction of OPT1 and OPT2 connectors.

5 **DIGITAL OUT COAXIAL jack (11)**
Connect a digital coaxial cable to output digital signals to other components.

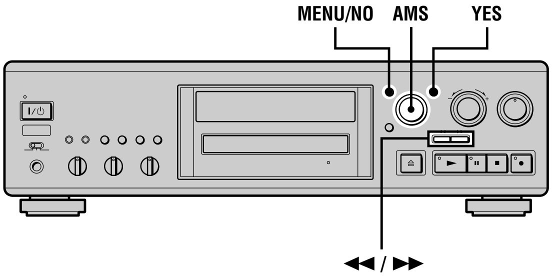
6 **DIGITAL OUT OPTICAL connector (11)**
Connect a digital optical cable to output digital signals to other components.

7 **CONTROL A1ùïùï jacks (11) (44)**

Setting the clock

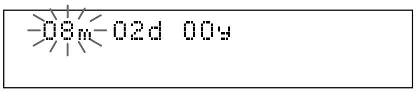
Once you set the MD deck's internal clock, the MD deck will automatically record the date and time of all recordings. For USA and Canadian models, date is displayed in the order of month, day, year, and time on a 12-hour clock. For European model, date is displayed in the order of day, month, year, and time on a 24-hour clock.

Note
The display windows below are of USA and Canadian models.

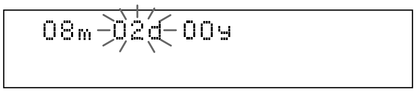


1 **While the deck is stopped, press MENU/NO twice.**
"Setup Menu" appears in the display.

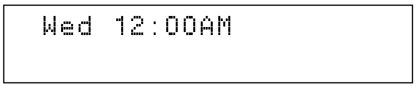
2 **Turn AMS (or press |◀◀/▶▶| repeatedly) until "Clock Set ?" appears, then press AMS.**
The month (or day) indication starts flashing.



3 **Turn AMS (or press |◀◀/▶▶| repeatedly) to enter the current day, then press AMS.**
The month (or day) indication stops flashing, and the day (or month) indication starts flashing.



4 **Repeat step 3 to enter the month, day, year, hour, and minute.**



When you enter the minute, the set date and time appear again followed by "Complete!!", and the clock settings are completed.

Changing the clock setting(s)

1 **Do steps 1 and 2 above.**

2 **Press AMS or|◀◀/▶▶| repeatedly until the setting you want to change flashes.**

3 **Turn AMS (or press |◀◀/▶▶| repeatedly) to change the setting, then press AMS.**

4 **To complete the setting, press AMS or |◀◀/▶▶| repeatedly until the minute indication flashes, then press AMS or YES.**

Displaying the current date and time

You can display the current date and time any time while the power is on.

Press DATE PRESENT.

Each press of the button changes the display as follows:

→ **Current display**
↓
Date
↓
Time

For precise date and time stamping of recordings
Reset the time at least once a week.

Note
If the AC power cord is disconnected for a long time, the memorized clock settings will disappear and "Initialize" will flash in the display the next time you plug in and turn on the deck. If this happens, reset the clock.

Displaying the recorded date

You can then check the recorded date and time of a track.

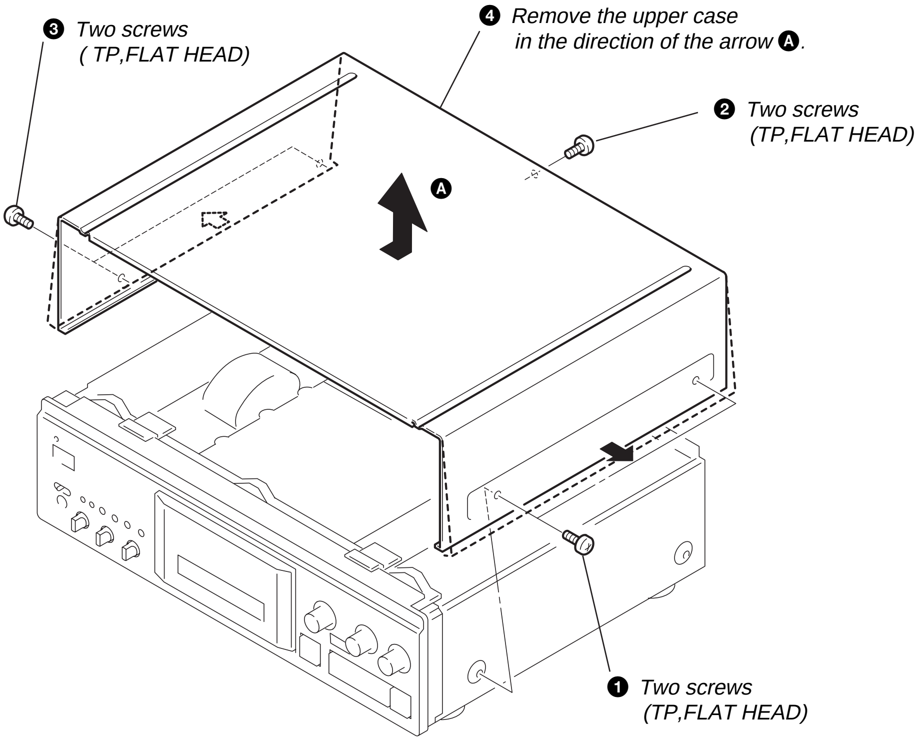
1 **Press |◀◀/▶▶| or number buttons to locate the track you want to check.**

2 **Press DATE RECORDED.**
"No Date" appears if the internal clock has not been set or the track was recorded to another MD deck without a date and time stamp function.

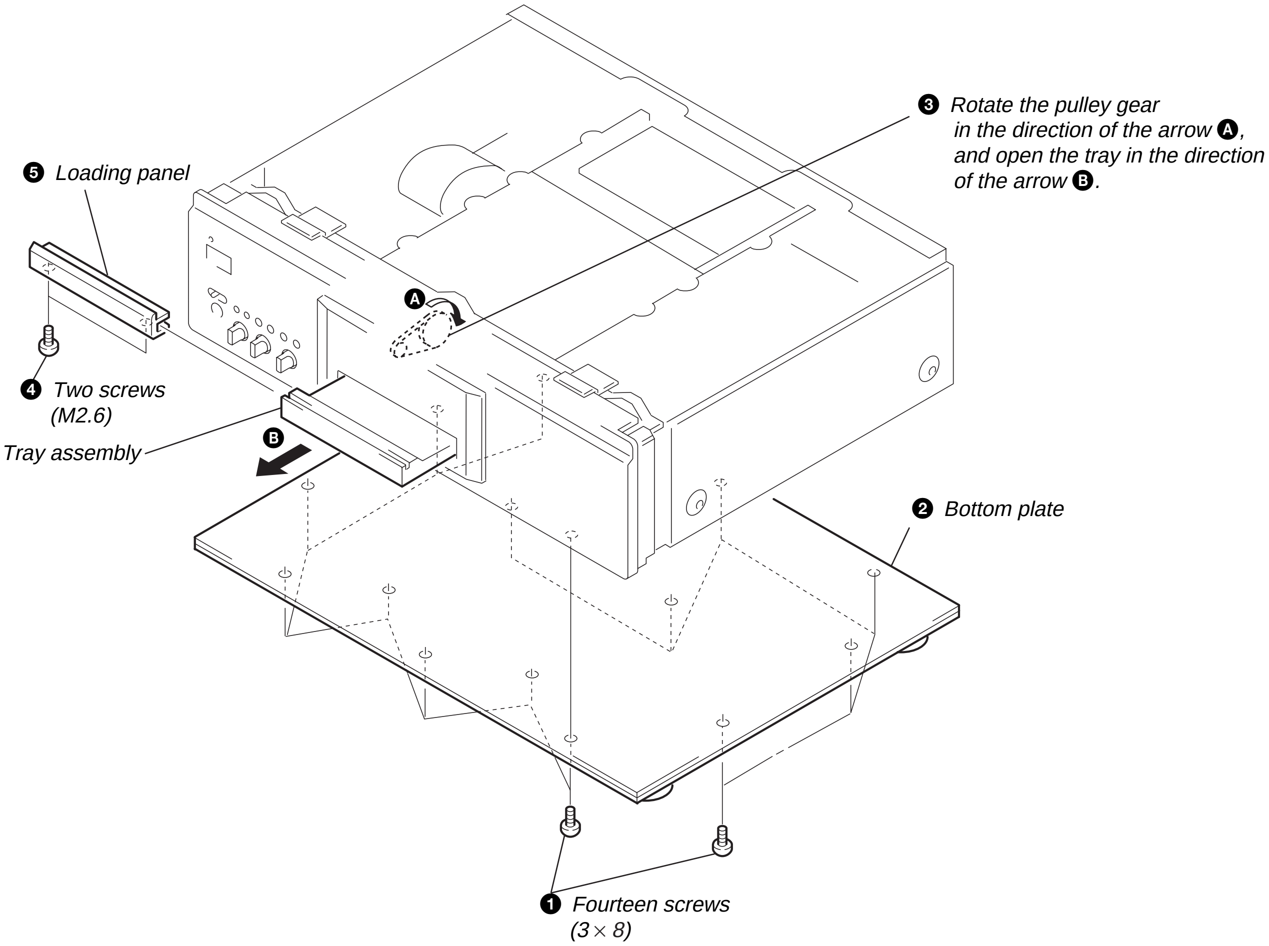
SECTION 3
DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

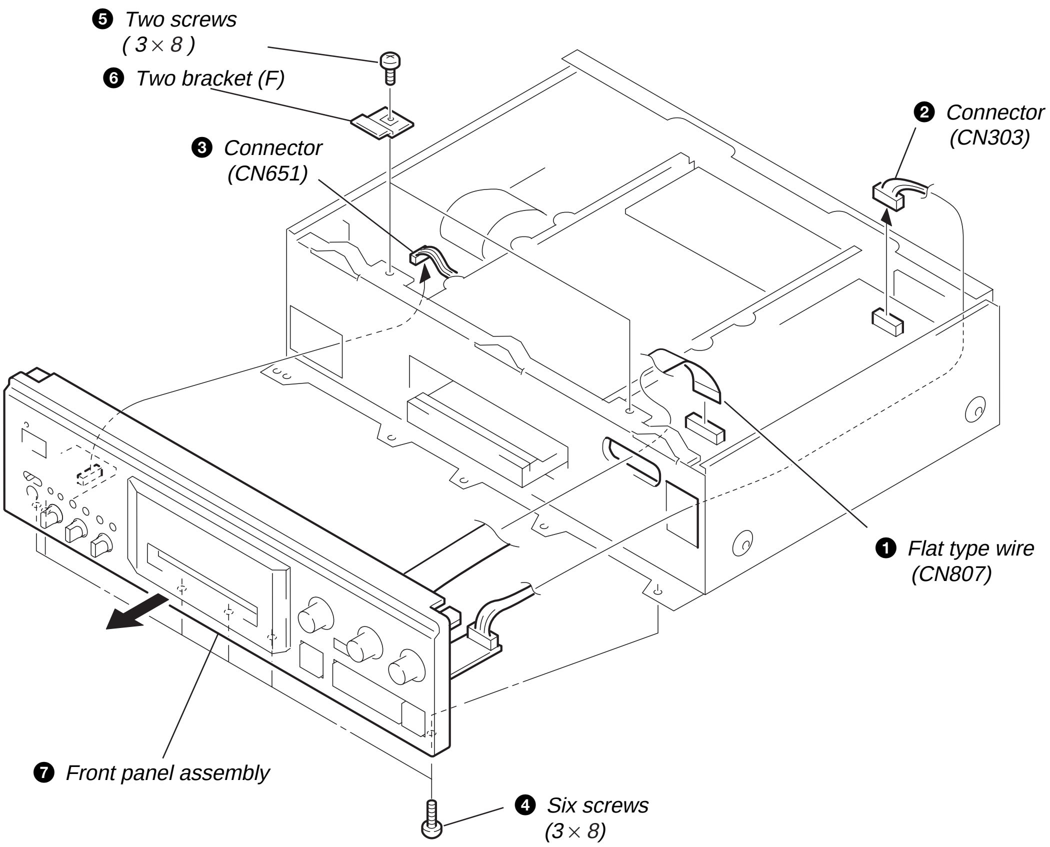
3-1. CASE


❸ Two screws
(TP,FLAT HEAD)
❹ Remove the upper case
in the direction of the arrow Ⓐ.
❷ Two screws
(TP,FLAT HEAD)
Ⓐ
❶ Two screws
(TP,FLAT HEAD)

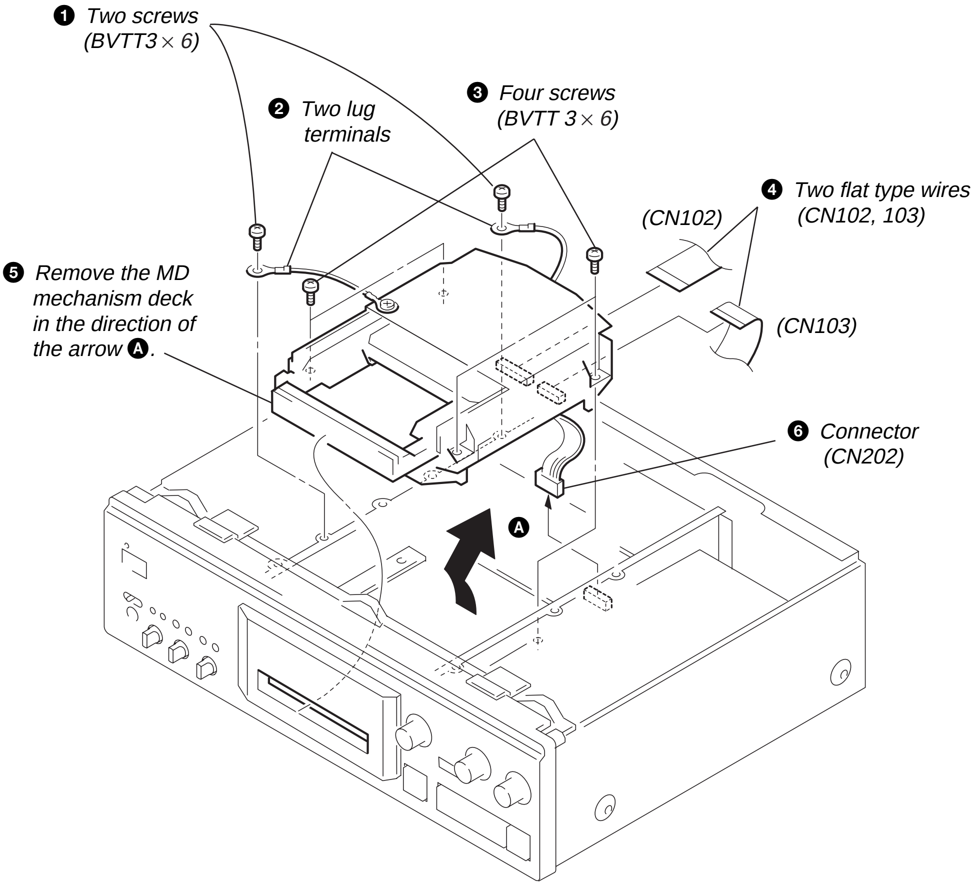
3-2. LOADING PANEL


❸ Rotate the pulley gear
in the direction of the arrow Ⓐ,
and open the tray in the direction
of the arrow Ⓑ.
❺ Loading panel
Ⓐ
❹ Two screws
(M2.6)
Tray assembly
Ⓑ
❷ Bottom plate
❶ Fourteen screws
(3 × 8)

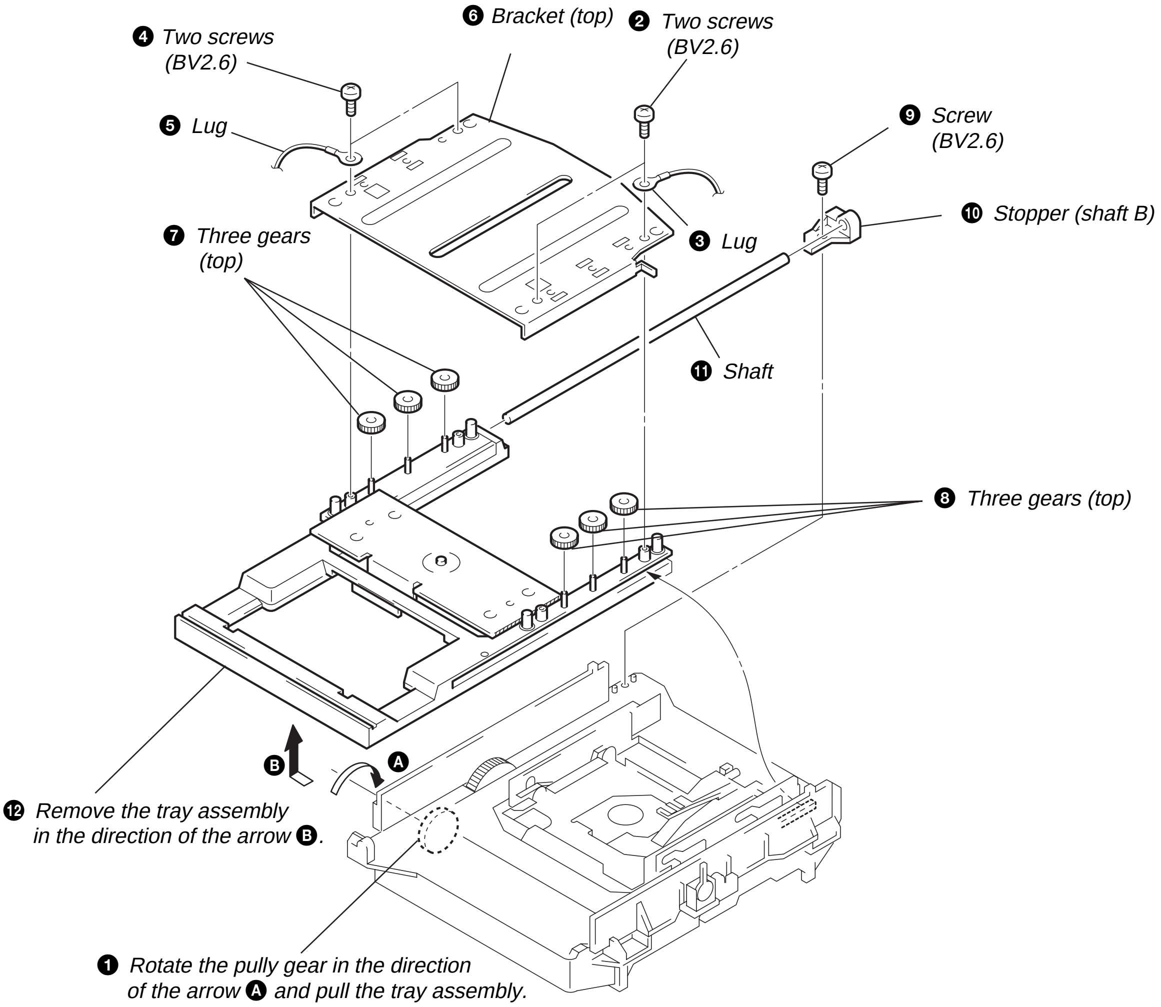
3-3. FRONT PANEL ASSEMBLY


❺ Two screws
(3× 8)
❻ Two bracket (F)
❸ Connector
(CN651)
❷ Connector
(CN303)
❶ Flat type wire
(CN807)
❼ Front panel assembly
❹ Six screws
(3× 8)

3-4. MD MECHANISM DECK


❶ Two screws
(BVTT3× 6)
❷ Two lug
terminals
❸ Four screws
(BVTT 3× 6)
❹ Two flat type wires
(CN102, 103)
(CN102)
(CN103)
❺ Remove the MD
mechanism deck
in the direction of
the arrow Ⓐ.
❻ Connector
(CN202)
Ⓐ

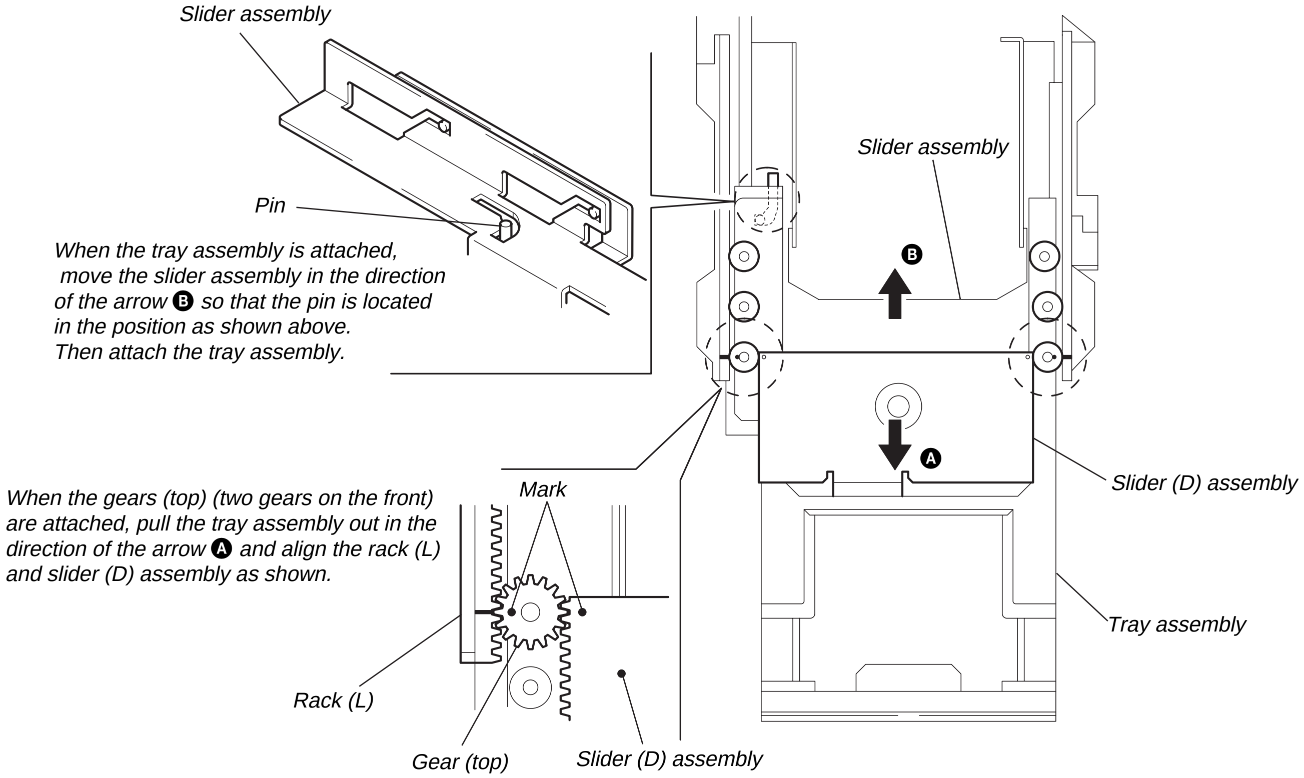
3-5. TRAY ASSEMBLY


❹ Two screws (BV2.6)
❻ Bracket (top)
❷ Two screws (BV2.6)
❺ Lug
❾ Screw (BV2.6)
❿ Stopper (shaft B)
❼ Three gears (top)
❸ Lug
⓫ Shaft
❽ Three gears (top)
Ⓑ
Ⓐ

⓬ Remove the tray assembly in the direction of the arrow Ⓑ.

❶ Rotate the pully gear in the direction of the arrow Ⓐ and pull the tray assembly.

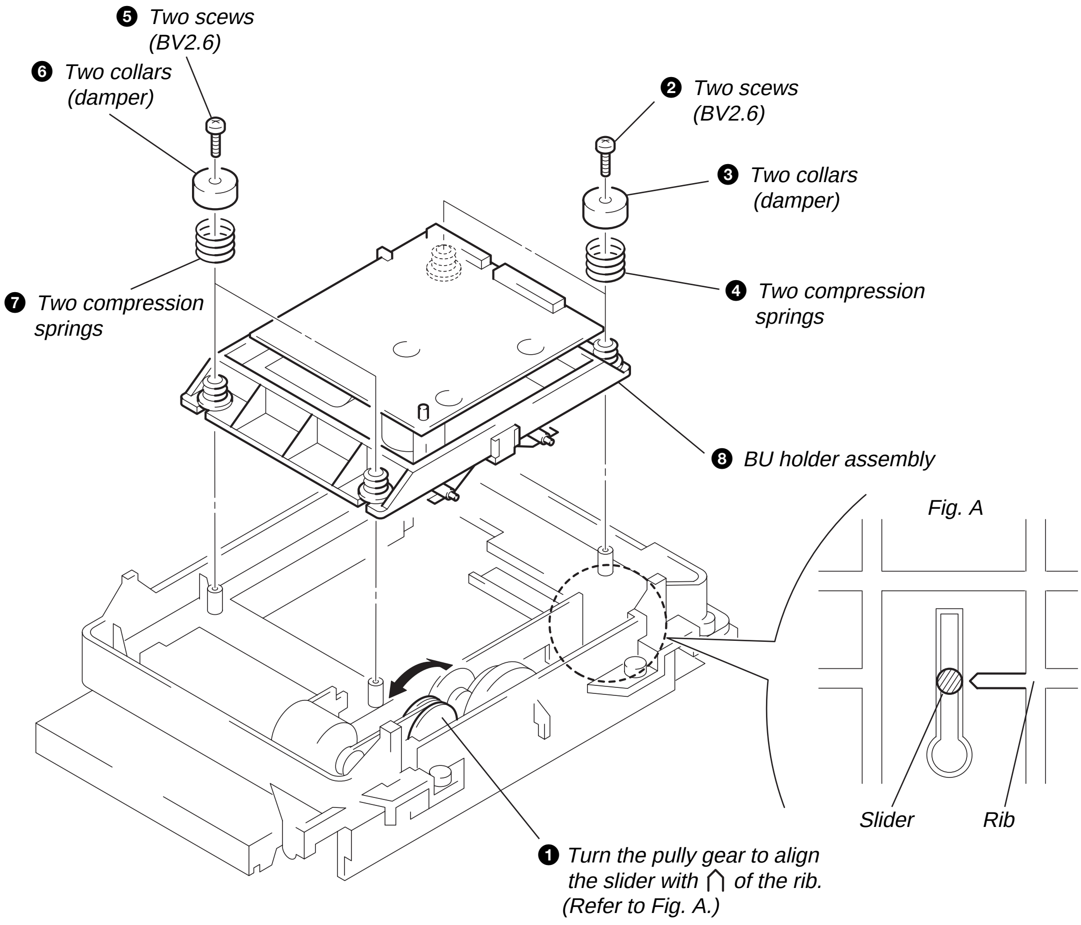
NOTE FOR INSTALLATION


Slider assembly
Pin
Slider assembly
Ⓑ
Ⓐ
Slider (D) assembly
Mark
Tray assembly
Rack (L)
Gear (top)
Slider (D) assembly

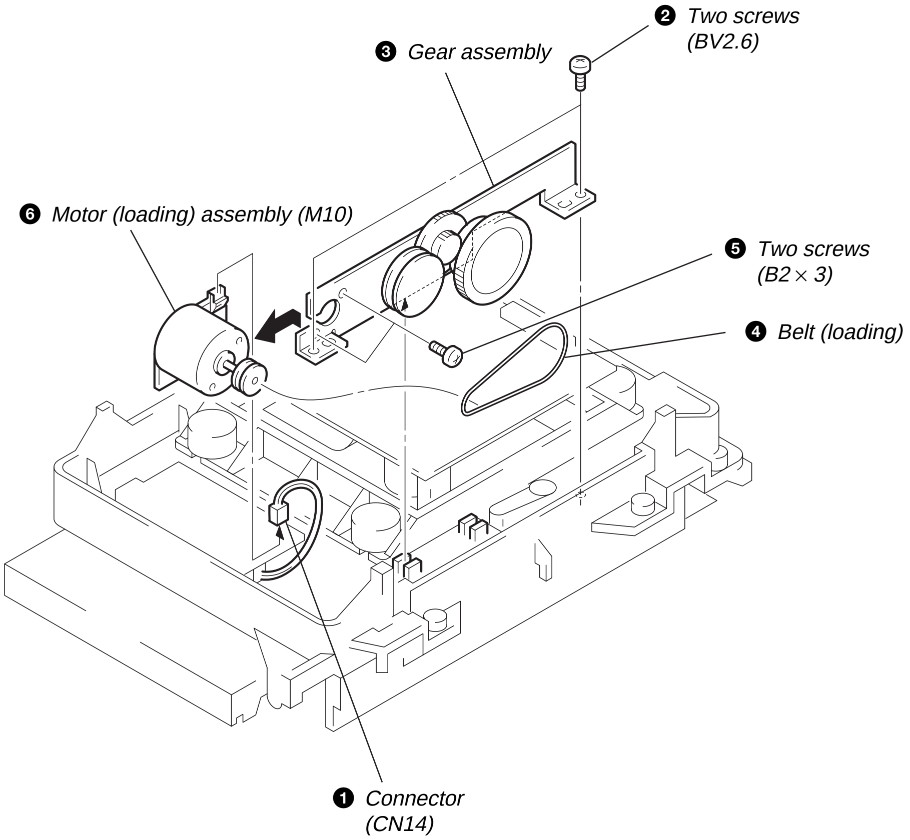
When the tray assembly is attached, move the slider assembly in the direction of the arrow Ⓑ so that the pin is located in the position as shown above. Then attach the tray assembly.

When the gears (top) (two gears on the front) are attached, pull the tray assembly out in the direction of the arrow Ⓐ and align the rack (L) and slider (D) assembly as shown.

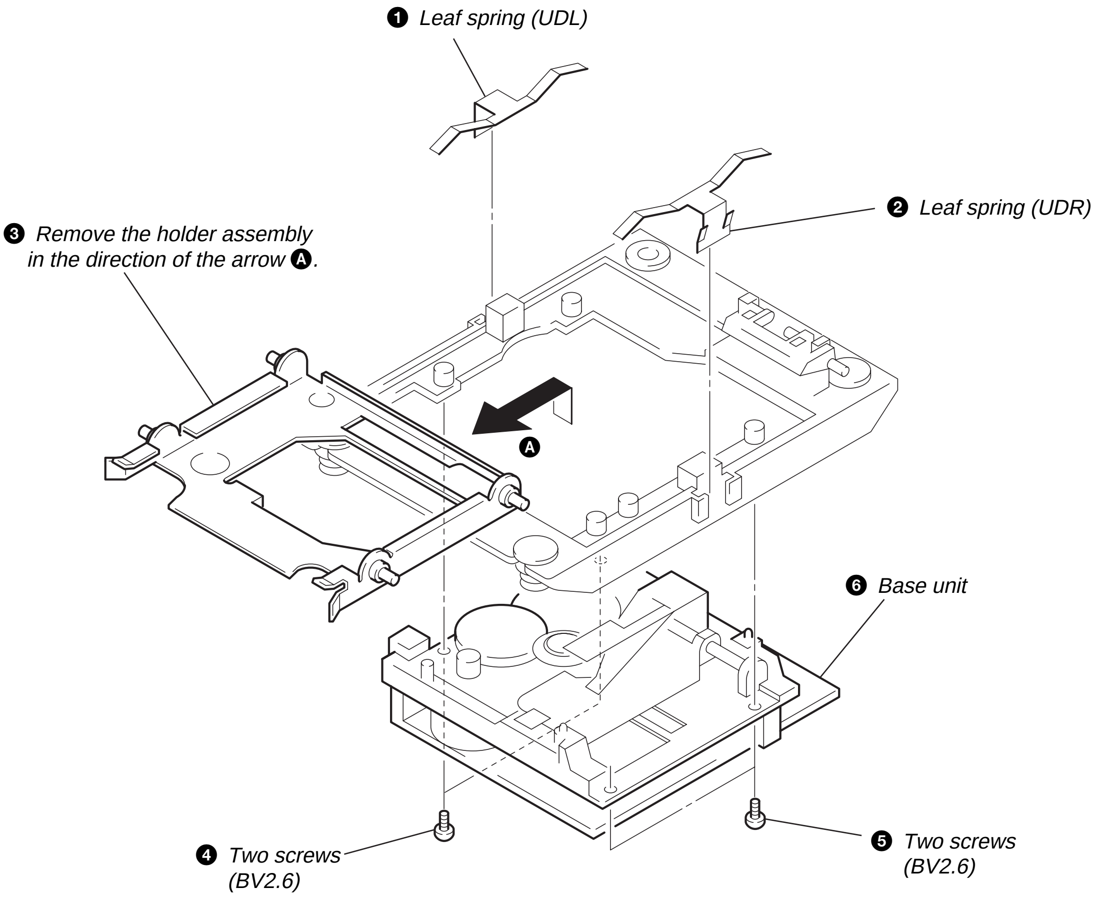
3-6. BU HOLDER ASSEMBLY


❺ Two scews (BV2.6)
❻ Two collars (damper)
❷ Two scews (BV2.6)
❸ Two collars (damper)
❼ Two compression springs
❹ Two compression springs
❽ BU holder assembly
Fig. A
Slider
Rib
❶ Turn the pully gear to align the slider with ⋂ of the rib. (Refer to Fig. A.)

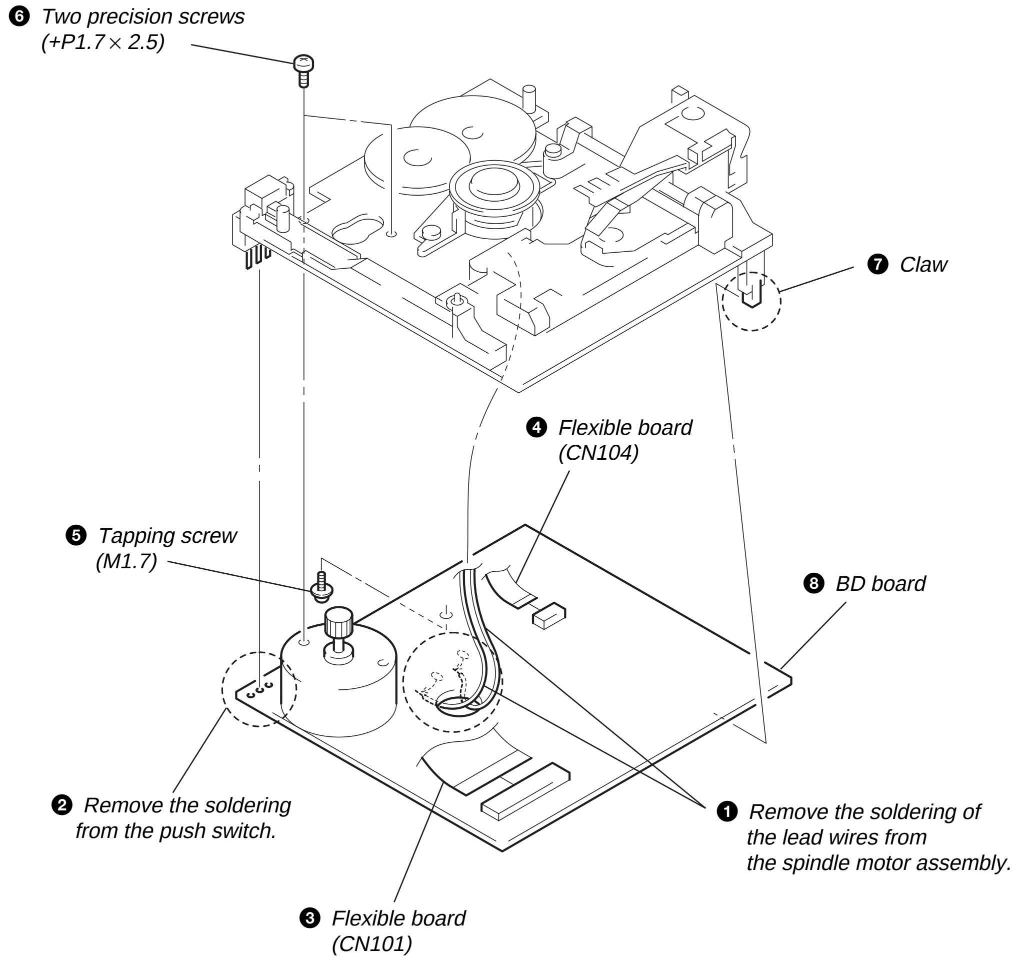
3-7. MOTOR (LOADING) ASSEMBLY (M10)


❷ Two screws (BV2.6)
❸ Gear assembly
❻ Motor (loading) assembly (M10)
❺ Two screws (B2 × 3)
❹ Belt (loading)
❶ Connector (CN14)

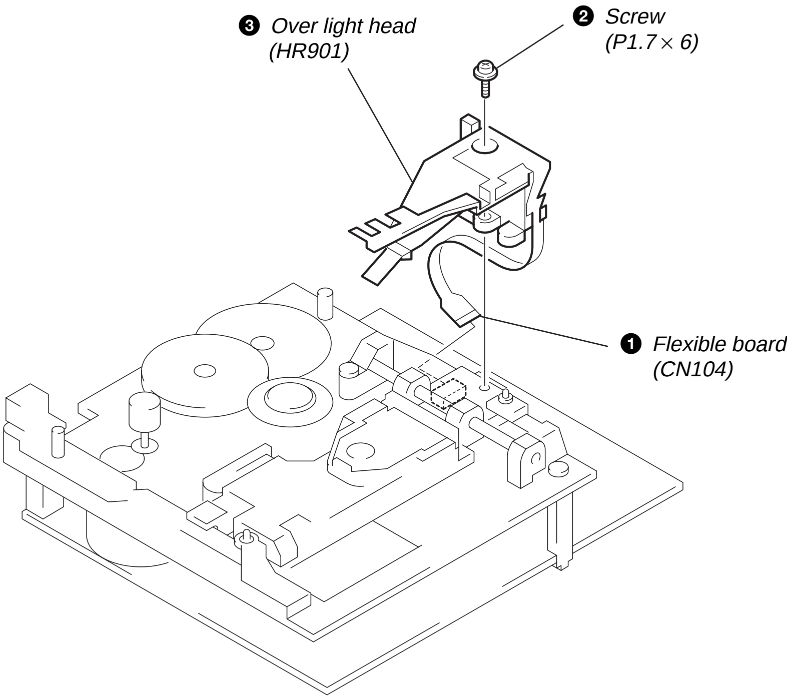
3-8. BASE UNIT (MBU-5J)


❶ Leaf spring (UDL)
❷ Leaf spring (UDR)
❸ Remove the holder assembly in the direction of the arrow Ⓐ.
Ⓐ
❻ Base unit
❹ Two screws (BV2.6)
❺ Two screws (BV2.6)

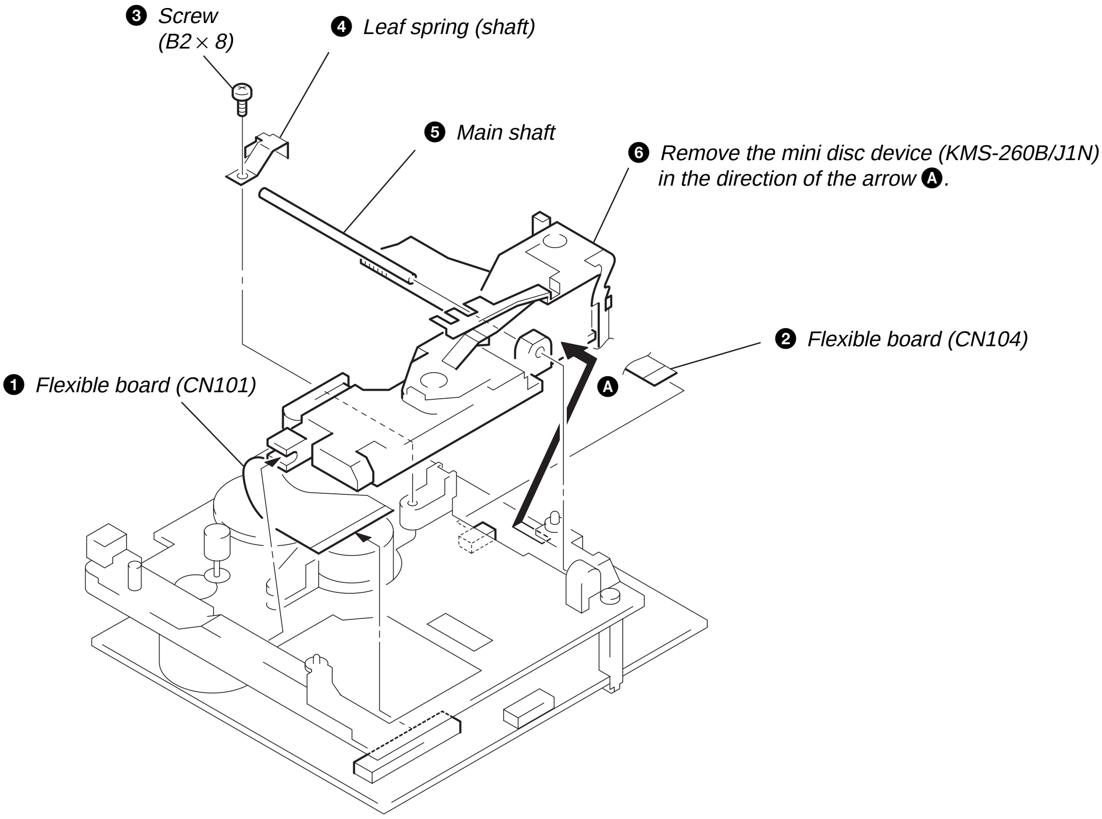
3-9. BD BOARD


❻ Two precision screws (+P1.7 × 2.5)
❼ Claw
❹ Flexible board (CN104)
❺ Tapping screw (M1.7)
❽ BD board
❷ Remove the soldering from the push switch.
❶ Remove the soldering of the lead wires from the spindle motor assembly.
❸ Flexible board (CN101)

3-10. OVER LIGHT HEAD (HR901)


❸ Over light head (HR901)
❷ Screw (P1.7 × 6)
❶ Flexible board (CN104)

3-11. MINI DISC DEVICE (KMS-260B/J1N)


❸ Screw (B2 × 8)
❹ Leaf spring (shaft)
❺ Main shaft
❻ Remove the mini disc device (KMS-260B/J1N) in the direction of the arrow Ⓐ.
❷ Flexible board (CN104)
Ⓐ
❶ Flexible board (CN101)

SECTION 4
TEST MODE

4-1. Precaution on Using the Test Mode

- Be sure to insert and eject a disc after confirming that the disc in the MDS-JA333ES has come to complete stop because the loading related movements of the mechanism are performed without any relationship with the test mode.
  Disc does not stop rotating even through the ⏏ button is pressed while disc is rotating in the modes such as continuous playback and continuous recording. Therefore, the disc is ejected while it is rotating.
  Be sure to press the MENU/NO button, then press the ⏏ button after a disc has completely stopped of its rotation.

4-1-1. Modes in Which Recording Laser Emits the Light and the Button Operations

- Continuos recording mode (CREC 1MODE)
- Laser power check mode (LDPWR CHECK)
- Laser power adjustment mode (LDPWR ADJUS)
- IOP check (IOP compare) (Not used with the MDM-6J and MBU-5J)
- IOP value non-volatile writing (IOP NV Save) (Not used with the MDM-6J and MBU-5J)
- Traverse (MO) check (EF MO CHECK)
- Traverse (MO) check (EF MO ADJUS)
- When the ●REC button is pressed

4-2. How to Enter the Test Mode

There are two methods to enter the test mode as follows.

Method 1: Connect the power plug to the outlet while pressing the |◁◁AMS▷▷| knob and ■ button at the same time, and remove the |◁◁AMS▷▷| knob and ■ button at the same time.
When the unit enters the test mode, “[Check]” appears. The three groups can be switched, ...↔ [Check] ↔ [Service] ↔ [Develop] ↔..... , by rotating the |◁◁AMS▷▷| knob.
The Develop group is not used for service. If you enter the group mistakenly, immediately press the MENU/NO button and exit the mode.

Method 2: Connect the power plug to the outlet while pressing the |◁◁AMS▷▷| knob, and remove the |◁◁AMS▷▷| knob.
When the unit enters the test mode, “TEMP CHECK” (C12) appears. When the test mode is entered using this method, the contents of check group at method 1 can be performed.

4-3. Exiting the Test Mode

Press the REPEAT button. The MDS-JA333ES enters the standby status and exits the test mode.

4-4. Basic Operation of the Test Mode

All operations are performed using the |◁◁AMS▷▷| knob, YES button, and MENU/NO button.
The functions of these button are as follows.

Function name	Function
MENU/NO button	Chancels or moves to the upper hierarchy
YES button	Decision
|◁◁AMS▷▷| knob (right/left)	Selection
|◁◁AMS▷▷| knob (pushed)	Decides the sub-menu

4-5. Selecting the Test Mode

There are 26 types of the test mode. The group can be switched by rotating the |◁◁AMS▷▷| knob. All the adjustments and checks for service can be performed in the test mode of the service group.
There is the Develop group, but it is not used for service. If you enter the group mistakenly, immediately press the MENU/NO button and exit the group.

Display	No.	Contents	Mark	Group	
				Chck	Service
AUTO CHECK	C01	Automatic self-diagnosis			○
Err Display	C02	Error history display, clear			○
TEMP ADJUS	C03	Temperature compensation offset adjustment			○
LDPWR ADJUS	C04	Laser power adjustment			○
Iop Write	C05	IP data writing			○
Iop NV Save	C06	Reads the current IOP value with microprocessor and writes it to non-volatile data			○
EF MO ADJUS	C07	Traverse (MO) adjustment			○
EF CD ADJUS	C08	Traverse (CD) adjustment			○
FBIAS ADJUS	C09	Focus bias check			○
AG Set (MO)	C10	Focus /tracking gain adjustment (MO)			○
AG Set (CD)	C11	Focus /tracking gain adjustment (CD)			○
TEMP CHECK	C12	Temperature compensation offset check		○	○
LDPWR CHECK	C13	Laser power check		○	○
EF MO CHECK	C14	Traverse (MO) check		○	○
EF CD CHECK	C15	Traverse (CD) check		○	○
FBIAS CHECK	C16	Focus bias adjustment		○	○
Scurve CHECK	C17	S curve check	×	○	
VERIFYMODE	C18	Non-volatile memory check	×	○	
DETRK CHECK	C19	Detract check	×	○	
0920 CHECK	C25	Outermost circumference check	×	○	
Iop Read	C26	IOP data display		○	○
Iop Compare	C27	Comparison to the initial IOP value written in non-volatile data		○	○
ADJ CLEAR	C28	Initialization of non-volatile memory of adjustment value			○
INFOMATION	C31	Display of microprocessor version, etc.		○	○
CPLAY1MODE	C34	Continuous playback mode		○	○
CREC 1MODE	C35	Continuous recording mode		○	○

- For detailed description of each adjustment mode, refer to Section 5 “Electrical Adjustments”.
  For “Err Display” (C02), refer to the self-diagnosis function of page 4.
- If a different adjustment mode has been selected by mistake, press the MENU/NO button to exit from it.
- The items marked × in the mark are not used in servicing, therefore they are not detailed. If select these modes accidentally, press the MENU/NO button immediately to exit from it. Be careful especially when using the test mode of the Develop group. The machine may not run correctly.
- AUTO CHECK, Iop NV Save and Iop Compare cannot be used with the MDM-6J and MBU-5J.

4-5-1. Operating the Continuos Playback Mode

1. Entering the continues playback mode
    1) Load the disc into the unit. (recordable disc or disc for playback)
    The disc is loaded by pushing the tray.
    2) Rotate the |◁◁AMS▷▷| knob to display “CPLAY1MODE” (C34).
    3) Press the YES button to change the display to “CPLAY1MID”.
    4) When access completes, the display changes the display to “C = □□□□ AD = □□ ”.

    Note **:** The value of the “□” displayed on the screen indicates error rate and “ADER”.

2. Changing the parts to be played back
    1) Press the YES button during continuos playback to change the display as shown and move the played back part.

    "CPLAY1MID" → "CPLAY1OUT" → "CPLAY1IN"

    2) When access completes, the display changes to “C = □□□□ AD = □□ ”.

    Note : The value of the “□” displayed on the screen indicates error rate and “ADER”.

3. Ending the continuos playback mode
    1) Press the MENU/NO button to change the display to “CPLAY1MODE” (C34).
    2) Press the ⏏ button to eject the disc.

    Note : The playback start addresses for IN, MID, and OUT are as follows.
    IN : 40h cluster
    MID : 300h cluster
    OUT : 700h cluster

4-5-2. Operating the Continuos Recording Mode (Use this mode for self record/playback check only)

1. Entering the continuos recording mode
   1) Load the recordable disc to the unit.
      The disc is loaded by pushing the tray.
   2) Rotate the ⏮◁AMS▷⏭ knob to display “CREC 1MODE” (C35).
   3) Press the YES button to change the display to “CREC1MID”.
   4) When access completes, the display changes the display to “CREC1(⬚⬚⬚⬚ ” and **REC** illuminates.

   **Note : ** The value of the “⬚” displayed on the screen indicates the address of the recorded position.

2. Changing the parts to be recorded
   1) Press the YES button during continuos playback to change the display as shown and move the played back part. **REC** disappears during moving.

      "CREC1MID" → "CREC1OUT" → "CREC1IN" ↵ (back to "CREC1MID")

   2) When access completes, the display changes to “CREC1(⬚⬚⬚⬚ ” and **REC** disappears.

   **Note : ** The value of the “⬚” displayed on the screen indicates the address of the recorded position.

3. Ending the continuos recording mode
   1) Press the MENU/NO button. The display changes to “CREC 1MODE” (C35) and **REC** disappears.
   2) To eject the disc, press the ⏏ button.

   Note 1 : The playback start addresses for IN, MID, and OUT are as follows.
   N : 40h cluster
   MID : 300h cluster
   OUT : 700h cluster

   Note 2 : The MENU/NO button can be used to stop recording anytime.

   Note 3 : Do not perform continuos recording for long periods of time above 5 minutes.

   Note 4 : During continuos recording, be careful not to apply vibration.

4-5-3. No-Volatile Memory Mode (EEP MODE)

This mode reads and writes the contents of the non-volatile memory.
It is not used in servicing. If selecting this mode accidentally, press the MENU/NO button immediately to exit it.

4-6. Functions of Other Buttons

Function name	Main contents
►	Sets continuos playback when pressed in the STOP state. When pressed during continuos playback, the tracking servo turns ON/OFF.
■	Stops continuos playback and continuous recording
►►	The sled moves to the outer circumference only when this is pressed
◄◄	The sled moves to the inner circumstance only when this is pressed
REC MODE (other models/SF EDIT/SCROLL)	Switches between the pit and groove modes when pressed
PLAY MODE	Switches the spindle servo mode (CLV S ↔ CLV A)
DISPLAY/CHAR	Switches the display when pressed
⏏/OPEN/CLOSE	Removes the disc
REPEAT/POWER	Exits test mode

4-7. Test Mode Displays

The DISPLAY key is used to switch display modes. The display modes are switched in the following order each time the DISPLAY key is pressed.

Order	Description	Example of display
1	MODE display	CPLAY1 (⬚⬚⬚⬚
2	Error rate display	C=⬚⬚⬚⬚AD=⬚⬚
3	Address display	h⬚⬚⬚⬚ s⬚⬚⬚⬚
4	Auto gain display	AG=⬚⬚ / ⬚⬚ [⬚⬚]
5	Detrack display	ADR=⬚⬚ # 0000
6	IVR display	[⬚⬚] [⬚⬚] [⬚⬚]
7	Displays C1 error and JITTER	J⬚⬚⬚⬚ C⬚⬚⬚⬚
8	Displays AD error and JITTER	J⬚⬚⬚⬚ AD=⬚⬚

When CPLAY or CREC starts, the display is forced to switch to 2 as initial mode.

Supplementary explanation of each display

1. MODE display
   “TEMP ADJUS” (C03), “CPLAY1MODE” (C34), etc. are displayed.
2. Error rate display
   Error rates are displayed as follows.
   C=⬚⬚⬚⬚AD=⬚⬚
   C= means the C1 error and AD= means ADER.
3. Address display
   Addresses are displayed as follows.
   h=⬚⬚⬚⬚ s=⬚⬚⬚⬚ (pit block of recordable disc and disc for playback only)
   h=⬚⬚⬚⬚ a=⬚⬚⬚⬚ (groove of recordable disc)
   h= means the header address, s= means the SUBQ address and a= means the ADIP address.
   * When the address cannot be read, “-” is displayed.

Displays other than the above ones are not used for service.

4-8. Meaning of Other Displays

Display	Contents	
	MODE display	Off
▷	Servo ON	Servo OFF
❚❚	Tracking servo OFF	Tracking servo ON
● REC	Recording mode OFF	Recording mode OFF
SYNC (other models/TOC EDIT)	CLV low speed mode	CLV normal mode
L. SYNC (other models/A.SPACE)	ABCD adjustment completed	
OVER	Tracking offset cancel ON	Tracking offset cancel OFF
B/1 (REP portion)	Tracking auto gain OK	
A-/REP	Focus auto gain OK	
TRACK/(LP)4/calender frame	Pit	Groove
DISC/LP2	High reflection	Low reflection
SLEEP/SHUF	CLV-S	CLV-A
MONO	CLV LOCK	CLV UNLOCK
PROGRAM	EF BAL change	

4-9. Information

Displays the version of software.

[Operation procedure]

1. Press the YES button while “INFORMATION” is displayed.
2. The version of the software will be displayed.
3. End this mode with the MENU/NO button.

4-10. Countermeasure when MEMORY NG Appears

If there is an abnormality in non-volatile memory data, “E001” / “MEMORY NG” appears so that the MO deck is not operated. If this happens, immediately enter the test mode and do the following.

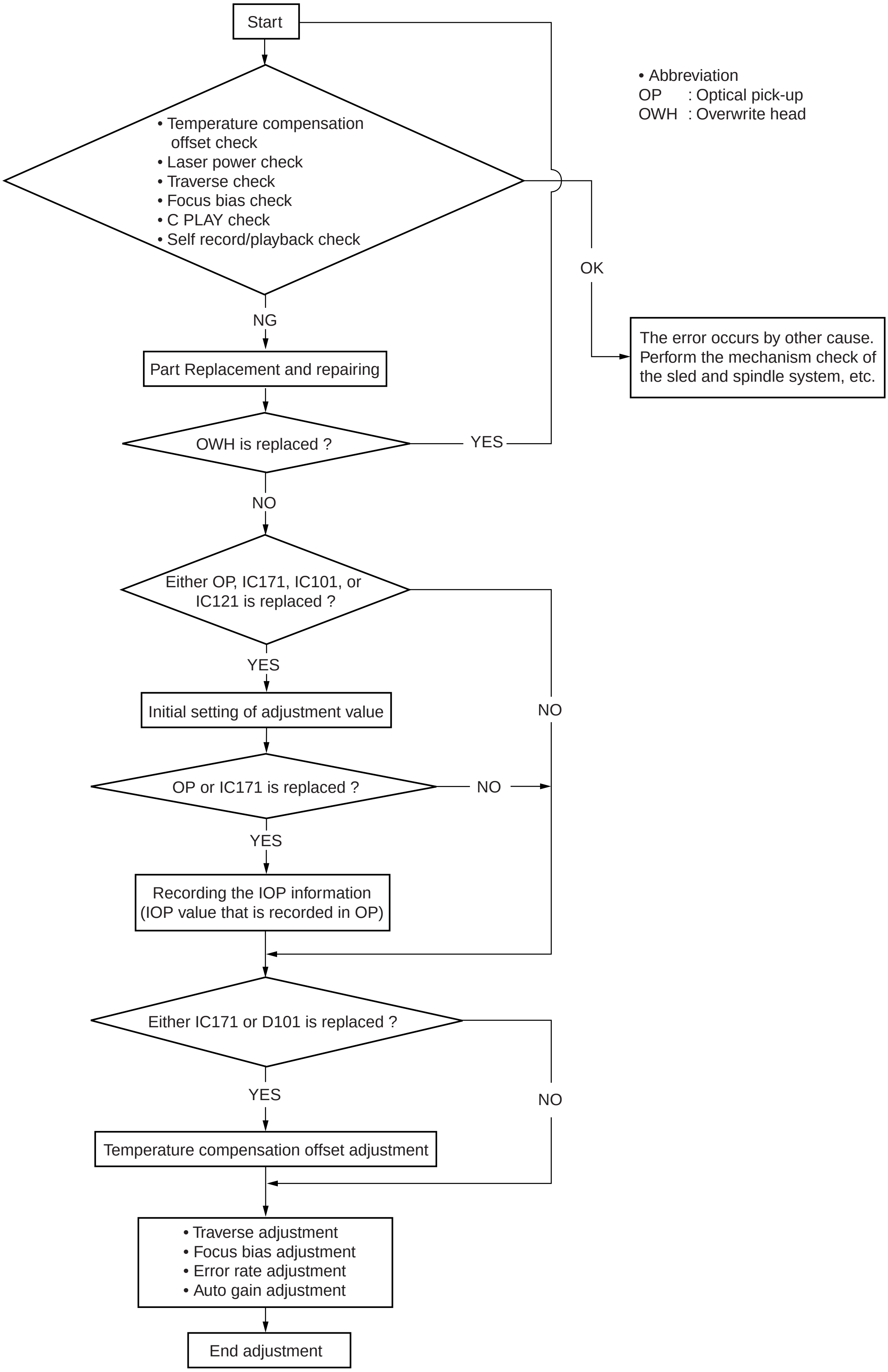
[Operation procedure]

1. Enter the test mode. (Refer to Section 4-2.)
2. The display for selecting the test mode normally appears. However, if there is an abnormality in non-volatile memory data, the following characters appears: “INIT EEP?”
3. Press the ■ button and ⏏ button at the same time.
4. Rotate the |◁◁AMS▷▷| knob to select “MBU-5J”.
5. Press the |◁◁AMS▷▷| knob. If the non-volatile memory data succeeds in being rewriting, the mode returns to the norma test mode and the display for selecting modes appears.

SECTION 5
ELECTRICAL ADJUSTMENTS

5-1. On Part Replacement and Adjustment

- Perform the checks and adjustments of the MDM and MBU blocks following the procedure below .
  The procedure is changed depending on the replaced part.


Start
• Temperature compensation offset check
• Laser power check
• Traverse check
• Focus bias check
• C PLAY check
• Self record/playback check
OK
The error occurs by other cause. Perform the mechanism check of the sled and spindle system, etc.
NG
Part Replacement and repairing
OWH is replaced ?
YES
NO
Either OP, IC171, IC101, or IC121 is replaced ?
YES
NO
Initial setting of adjustment value
OP or IC171 is replaced ?
NO
YES
Recording the IOP information (IOP value that is recorded in OP)
Either IC171 or D101 is replaced ?
YES
NO
Temperature compensation offset adjustment
• Traverse adjustment
• Focus bias adjustment
• Error rate adjustment
• Auto gain adjustment
End adjustment

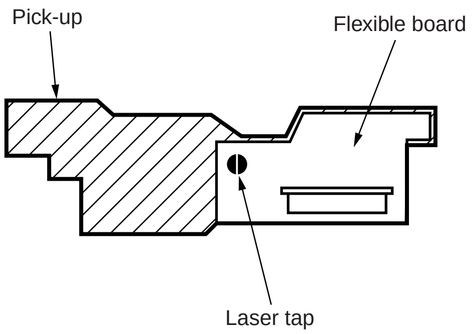
• Abbreviation
OP : Optical pick-up
OWH : Overwrite head

5-2. Precautions for Checking Laser Diode Emission

To check the emission of the laser diode during adjustments, never view directly from the top as this may lose your eye-sight.

5-3. Precautions for Use of Optical Pick-up (KMS-260B)

As the laser diode in the optical pick-up is easily damaged by static electricity, solder the laser tap on the flexible board of the optical pick-up when using it.
Before disconnecting the connector, disorder the laser tap. Be careful not to remove the solder before connecting the connector. Also take adequate measures to prevent damage by static electricity. Handle the flexible board with care as it breaks easily.



Optical pick-up flexible board

5-4. Precautions for Adjustments

1) When replacing the following parts, perform the adjustments and checks with !! in the order shown in the following table.

	Optical pick-up	BD board			
		IC171	D101	IC101, IC121	IC192
1. Initial setting of adjustment value	○	○	×	○	×
2. Recording IOP information (the value that is written in pick-up)	○	○	×	×	×
3. Temperature compensation offset adjustment	×	○	○	×	×
4. Laser power adjustment	○	○	×	○	○
5. Traverse adjustment	○	○	×	○	×
6. Focus bias adjustment	○	○	×	○	×
7. Error rate adjustment	○	○	×	○	×
8. Auto gain output level adjustment	○	○	×	○	×

2) Set the test mode when performing the adjustments.
After completing the adjustments, exit the test mode.
Perform the adjustments and checks in "Group S" of the test mode.
3) Perform the necessary adjustments only in the order given.
4) Use the following tools and measuring devices.
- Check disc (MD) TDYS-1 (Parts No.: 4-963-646-01)
- Test disc (MDW-74/GA-1) (Parts No.: 4-229-747-01)
- Laser power meter LPM-8001 (Parts No.: J-2501-046-A)

Or
- MD laser power meter 8010S (Parts No.: J-2501-145-A) (Note)
- Oscilloscope (Measure after perform the CAL of the probe.)
- Digital voltmeter
- Thermometer
- Tool for checking waveform of BD board (Parts No.: J-2501-149-A)

5) When observing several signals on the oscilloscope, etc., make sure that VC and ground do not connect inside the oscilloscope. (VC and ground will become short-circuited.)
6 When checking the waveform, the check can be performed without soldering by using the tool for checking waveform of BD board.
(Refer to the Service note (page 7).)
7) Use the tool disc that is free from finger print and dust as they can affect result of adjustment.

Note: Laser power meter
When the laser power check and adjustment of the electrical adjustment are performed, using the new MD laser power meter 8010S (J-2501-145-A) instead of the former laser power meter is recommended.
The procedure of installing the laser meter sensor to the objective lens of pick-up is greatly simplified.

5-5. Creating Continuos Recorded Disc

- This disc is used in focus bias adjustment and error rate check. The following describes how to create a continuos recording disc.

1. Load a disc (blank disc) commercially available.
   the disc is loaded by pushing the tray.
2. Rotate the I◁◁AMS▷▷I knob and display “CREC 1MODE” (C35).
3. Press the YES button to display “CMEC 1MID”.
   “CREC1 (0300)” is displayed for a moment and recording starts.
4. Complete recording within 5 minutes.
5. Press the MENU/NO button to stop recording.
6. Press the ⏏ button to eject the disc.

The above has been how to create a continuos recording data for the focus bias adjustment and error rate check.

Note:

- Be careful not to apply vibration during continuos recording.

5-6. Check before Repairing

This check aims at locating the approximate position of cause of trouble before starting to replace parts using specifications.
For detailed information, refer to [Checks before Part Replacement and Adjustment] of Service note.

5-6-1. Temperature Compensation Offset Check

Before adjustment, set the internal temperature and the ambient temperature are between 22 and 28 °C.
Checking procedure:

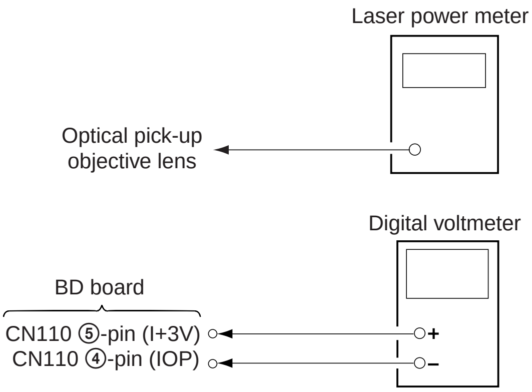
1. Rotate the I◁◁AMS▷▷I knob to display “TEMP CHECK” (C12).
2. Press the YES button.
3. It is OK when “T=@@(##)[OK” appears. It is NG when “T=@@(##)[NG” appears. (@@ is the current value. ## is the value that is written in the non-volatile memory.)

5-6-2. Laser Power Check

Before check:

- Refer to Section 1 “Service note” How to open the disc tray when power switch is turned off, and laser power check.
- Check the IOP value of optical pick-up. (Refer to Section 5-8 “Recording and displaying the IOP information”.)

Connection:

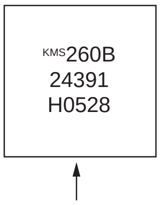


Checking procedure:

1. Insert the laser power meter from the disc inlet and set it on the objective lens of the optical pick-up. (When it cannot be set properly, press the ◀◀ button and ▶▶ button to move the optical pick-up.)
   Connect the digital voltmeter to CN110 ⑤-pin (I+3V) and the CN110 ④-pin (IOP).
2. Rotate the I◁◁AMS▷▷I knob to display “LDPWR CHECK” (C13).
3. Press the YES button once to display “LD 0.9mW $⬚⬚ ”.
   Confirm that the reading of the laser power meter is 0.84 to 0.92 mW.
4. Press the YES button once again to display “LD 7.0mW $⬚⬚”.
   Confirm that the readings of the laser power meter and digital bolt meter satisfy the specified value.
5. Then press the YES button once again to display “LD 6.2mW $⬚⬚ ”.

Specification:
Laser power meter reading: 7.0 ± 0.2 mW
Digital bolt meter reading: Optical pick-up displayed value ± 10 %

(Optical pick-up label)



(For the checking procedure of this value, refer to Section 5-8 “Recording and displaying the IOP information”.)

IOP = 52.8 mA in this case
IOP (mA) = digital bolt meter reading (mV)/1 (W)

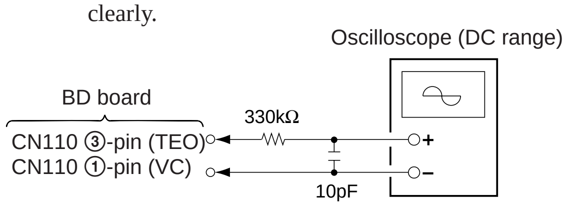
6. Press the MENU/NO button to display “LDPWR CHECK” (C13) and stop laser emission.
   (The MENU/NO button is effective at all times to stop the laser emission.)

Note 1 : After step 4, the display of “LD 0.7mW$⬚⬚ ” “LD 6.2mW$⬚⬚”, “LD Wpホセイ $⬚⬚” is switched every time when pressing the YES button. Operation is not necessary for these displays.

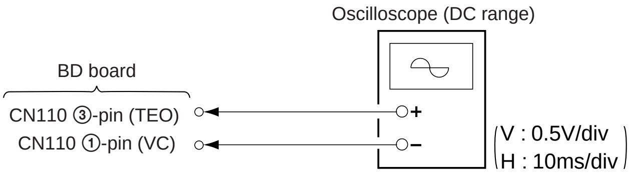
5-6-3. Traverse Check

Note 1 : If the recorded disc is used for this adjustment, the data is deleted.

Note 2 : If the traverse waveform is not clear, connect the oscilloscope as shown below so that it can be seen more clearly.



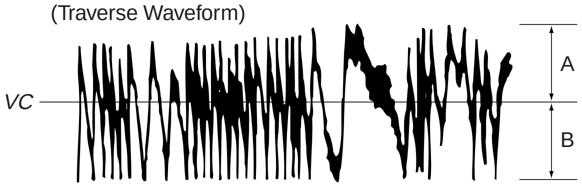
Connection:



Checking procedure:

1. Connect the oscilloscope to the CN110 ③-pin (TEO) and the CN110 ①-pin (VC) of the BD board.
2. Load a recordable disc (any available on the market). (Refer to Note 1.)
   The disc is loaded by pushing the tray.
3. Press the ▶▶ button to move the optical pick-up outside the pit.
4. Rotate the |◁◁AMS▷▷| knob to display "EF MO CHECK" (C14).
5. Press the YES button to display "EFB = □□ MO-R".
   (Laser power READ power, focus servo ON, tracking servo OFF, and spindle (S) servo ON are set)
6. Observe the waveform of the oscilloscope and confirm it is within the specified value. Do not rotate the |◁◁AMS▷▷| knob at that time.
   (Read power traverse check)

(Traverse Waveform)

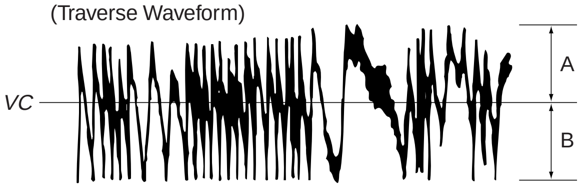


Specification: Offset value 10% or less

Offset value % = $\frac{|AB|}{2(A+B)} \times 100$

7. Press the YES button to display "EFB = □□ MO-W".
8. Observe the waveform of the oscilloscope and confirm it that is within the specified value. Do not rotate the |◁◁AMS▷▷| knob at this time.
   (Write power traverse check)

(Traverse Waveform)

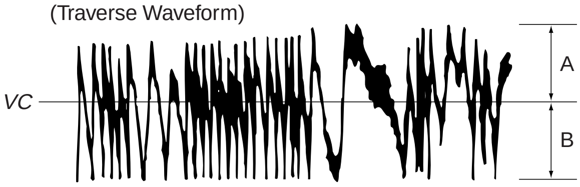


Specification: Offset value 10% or less

Offset value % = $\frac{|AB|}{2(A+B)} \times 100$

9. Press the YES button to display "EFB = □□ MO-P". The optical pick-up moves to the internal circumference of the pit area automatically and servo is imposed.
10. Observe the waveform of the oscilloscope and confirm that it is within the specified value. Do not rotate the |◁◁AMS▷▷| knob at this time.

(Traverse Waveform)

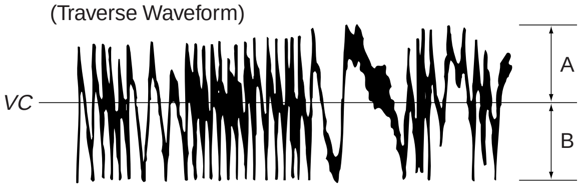


Specification: Offset value 10% or less

Offset value % = $\frac{|AB|}{2(A+B)} \times 100$

11. Press the YES button to display "EF MO CHECK" (C14). The disc stops rotating automatically.
12. Press the ⏏ button to eject the disc.
13. Load the check disc (MD) TDYS-1.
14. Rotate the |◁◁AMS▷▷| knob to display "EF CD CHECK" (C15).
15. Press the YES button to display "EFB = □□ CD". The servo is imposed automatically.
16. Observe the waveform of the oscilloscope and confirm that it is within the specified value. Do not rotate the |◁◁AMS▷▷| knob at this time.

(Traverse Waveform)



Specification: Offset value 10% or less

Offset value % = $\frac{|AB|}{2(A+B)} \times 100$

17. Press the YES button to display "EF CD CHECK" (C15).
18. Press the ⏏ button to eject the check disc (MD) TDYS-1.

5-6-4. Focus Bias Check

Change the focus bias to check the focus tolerance amount.

Checking procedure:

1. Load the test disc (MDW-74/GA-1).
   The disc is loaded by pushing the tray.
2. Rotate the |◁◁AMS▷▷| knob to display “CPLAY1MODE” (C34).
3. Press the YES button to display “CPLAY1MID”.
4. After “C = ⬚⬚⬚⬚ AD = ⬚⬚” appears, press the MENU/NO button.
5. Rotate the |◁◁AMS▷▷| knob to display “FBIAS CHECK” (C16).
6. Press the YES button to display “ ⬚⬚⬚⬚ /⬚⬚ c = ⬚⬚ ”.
   The first four digits indicate the C1 error rate, the two digits after “/” indicate ADER, and the two digits after “c = “ indicate the focus bias amount.
   Confirm that the C1 error is below 220 and the ADER is below 2.
7. Press the YES button to change the display to “⬚⬚⬚⬚ /⬚⬚b = ⬚⬚ ”.
   Confirm that the C1 error is below 220 and the ADER is below 2.
8. Press the YES button to change the display to “⬚⬚⬚⬚ /⬚⬚a = ⬚⬚ ”.
   Confirm that the C1 error is below 220 and the ADER is below 2.
9. Press the MENU/NO button and press the ⏏ button to eject the test disc.

5-6-5. C PLAY Check

MO Error rate check

Checking procedure:

1. Load a test disc (MDW-74/GA-1).
   The disc is loaded by pushing the tray.
2. Rotate the |◁◁AMS▷▷| knob to display “CPLAY1MODE” (C34).
3. Press the YES button to display “CPLAY1MID”.
4. The display is changed to “C = ⬚⬚⬚⬚ AD = ⬚⬚”.
5. Confirm that the C1 error rate is below 80 and the ADER is below 2.
6. Press the MENU/NO button to stop playing back. Press the ⏏ button to eject the test disc.

CD Error rate check

Checking procedure:

1. Load a check disc (TDYS-1).
   The disc is loaded by pushing the tray.
2. Rotate the |◁◁AMS▷▷| knob to display “CPLAY1MODE” (C34).
3. Press the YES button to display “CPLAY1MID”.
4. The display is changed to “C = ⬚⬚⬚⬚ AD = ⬚⬚”.
5. Confirm that the C1 error rate is below 50.
6. Press the MENU/NO button to stop playing back. Press the ⏏ button to eject the check disc.

5-6-6. Self Record/Playback Check

- The error rate is checked using the self record/playback disc. Manufacture the self record/playback disc by user locally using the MDS-JA333ES that is going to be measured of its error rate by means of continuous recording.

Checking procedure:

1. Load a recordable disc (blank disc) into the unit.
   The disc is loaded by pushing the tray.
2. Rotate the |◁◁AMS▷▷| knob to display “CREC 1MODE” (C35).
3. Press the YES button to display “CREC 1MID”.
4. When recording starts, the message **REC** appears and the message changed to “CREC (@@@@” (@@@@ is an address) and recording starts.
5. After one minute, press the MENU/NO button to stop continuos recording.
6. Rotate the |◁◁AMS▷▷| knob to display “CPLAY1MODE” (C34).
7. Press the YES button to display “CPLAY1MID”.
8. Display “C = ⬚⬚⬚⬚ AD = ⬚⬚”.
9. Confirm that the C1 error rate is below 80 and the AD error rate is below 2.
10. Press the MENU/NO button to stop playing back. Press the ⏏ button to eject the check disc.

5-7. Returning to Initial Setup of Adjustment Value

Note:

The adjustment result that is stored in the non-volatile memory is all cleared and returned to the initial setup value when procedure is performed. However, the adjustment result of the temperature compensation offset adjustment remains unchanged.

When this procedure is performed, be sure to perform all adjustments from very beginning to the end again except the temperature compensation offset adjustment. Perform this procedure as necessary before starting adjustment referring to section “5-4. Precautions for Adjustments”.

Setting procedure:

1. Rotate the |◁◁AMS▷▷| knob to display “ADJ CLEAR” (C28).
2. After pressing the YES button, “Complete!” appears for a moment and the initial setting is started. Then, “ADJ CLEAR” (C28) appears.

5-8. Recording and Displaying the IOP Information

The IOP data that is indicated on the pick-up, can be saved in the non-volatile memory of the MDS-JA333ES. The IOP data that is printed on the optical pick-up and the IOP data after adjustment is completed can be saved in the memory. Saving the IOP data in the memory eliminates the needs to look at the printed value on the label that is attached on the surface of optical pick-up, and enables to view the IOP data on display.

Recording procedure:

1. Rotate the I◁◁AMS▷▷I knob to display “Iop Write” (C05). Press the YES button.
2. “Ref=@@@.@” (@ is arbitrary number.) appears and the values that can be changed flash.
3. Input the value of IOP that is written in the optical pick-up.
   Selecting figure : Rotate the I◁◁AMS▷▷I knob.
   Selecting digit : Press the I◁◁AMS▷▷I knob.
4. Press the YES button and “Measu=@@@.@” (@ is arbitrary number.) appears.
5. The value of step 4 is used to record the adjustment result, so press the YES button.
6. “Complete!” appears for a moment, and the value is recorded in the non-volatile memory. Then, “Iop Write” (C05) appears.

Displaying procedure:

1. Rotate the I◁◁AMS▷▷I knob to display “Iop Read” (C26) and press the YES button.
2. “@@.@/##.#” appears and the contents that is recorded are displayed.
   @@.@: The value of IOP that is described in pick-up
   ##.#: The value of IOP after adjustment
3. When the display is completed, press the I◁◁AMS▷▷I knob or MENU/NO button to display “Iop Read” (C26).

5-9. Temperature Compensation Offset Adjustment

The temperature data at 25°C is used as the reference data and is saved in the non-volatile memory for offset adjustment.

Note.

1. Do not perform this adjustment normally.
2. Perform this adjustment under the ambient temperature in the range of 22 to 28 °C. Perform this adjustment immediately after the main power is turned on in which the internal temperature of MDS-JA333ES is still the same as the ambient temperature.
3. After replacing the D101, wait the until the temperature of the parts become the same as the ambient temperature and perform this adjustment.

Checking procedure:

1. Rotate the I◁◁AMS▷▷I knob to display “TEMP ADJUS” (C03).
2. Press the YES button and select the “TEMP ADJUS” (C03) mode.
3. “TEMP= □□[OK” and the current temperature data appear.
4. When the data is saved: Press the YES button
   When the data is not saved: Press the MENU/NO button
5. When the YES button is pressed, “TEMP = □□ SAVE” and “TEMP ADJUS” (C03) appear.
   When the MENU/NO button is pressed, the display is changed to “TEMP ADJUS” (C03) immediately.

Specified value:

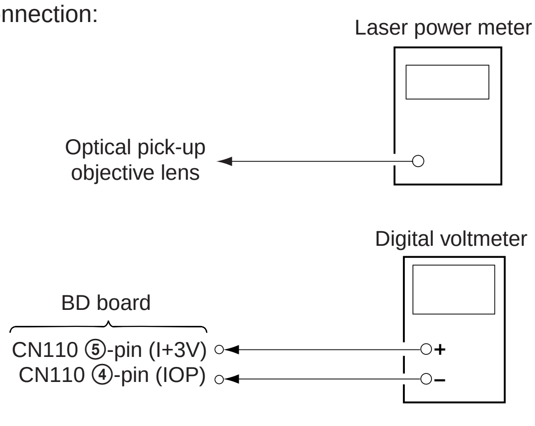
The value of TEMP = □□ is within E0 to EF, F0 to FF, 00 to 0F, 10 to 1F, and 20 to 2F.

5-10. Laser Power Adjustment

Before adjustment:

Confirm the IOP value of optical pick-up. (Refer to Section 5-8 “Recording and displaying the IOP information”.)

Connection:

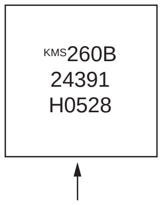


Adjustment procedure:

1. Insert the laser power meter from the disc inlet and set it on the objective lens of the optical pick-up. (When it cannot be set properly, press the ◀◀ button and ▶▶ button to move the optical pick-up.)
   Connect the digital voltmeter to CN110 ⑤-pin (I+3V) and the CN110 ④-pin (IOP).

2. Rotate the |◁◁AMS▷▷| knob to display “LDPWR ADJUS” (C04).
   (laser power: for adjustment)
3. Press the YES button once to display “LD 0.9mW $ □□ ”.
4. Set the lens knob of the laser power meter to 10 mW, press the YES button, and save the adjustment results in the non-volatile memory. (“LD SAVE $ □□ ” appears for a moment at this time.)
5. “LD 7.0mW $□□ ” is displayed.
6. Rotate the |◁◁AMS▷▷| knob so that the reading of the laser power meter is 6.9 to 7.1 mW. Press the YES button and save it. (“LD SAVE $ □□” appears for a moment at this time.)
   Note: Do not perform the emission of 7.0 mW continuously for 15 seconds and more.
7. Rotate the |◁◁AMS▷▷| knob to display “LDPWR CHECK” (C13).
8. Press the YES button once to display “LD 0.9mW $□□ ”.
   The reading of laser power meter is 0.85 to 0.91 mW.
9. Press the YES button once to display “LD 7.0mW $□□ ”.
   The reading of laser power meter is within the specified value.
   Take note of the digital bolt mater reading.

(Optical pick-up label)



(For the checking procedure of this value, refer to Section 5-8 “Recording and displaying the IOP information”.)

IOP = 52.8 mA in this case
IOP (mA) = digital bolt meter reading (mV)/1 (W)

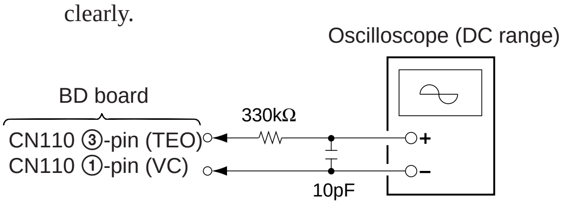
10. Press the MENU/NO button to display “LDPWR CHECK” (C13) and stop laser emission.
    (The MENU/NO button is effective at all times to stop the laser emission.)
11. Rotate the |◁◁AMS▷▷| knob to display “lop Write” (C05).
12. Press the YES button and after “Ref=@@@.@” (@ is arbitrary number.) appears press the YES button to display “Measu=@@@.@”. (@ is arbitrary number.)
13. The changeable value flashes. Input the IOP value that is written at step 9.
    Selecting figure: Rotate the |◁◁AMS▷▷| knob.
    Selecting digit : Press the |◁◁AMS▷▷| knob.
14. After pressing the YES button, “Complete!” appears for a moment, and the value is recorded in the non-volatile memory. Then, “Iop Write” (C05) appears.

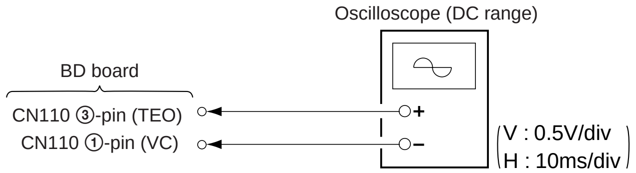
Note 1: After step 9, the display of “LD 0.7mW$ □□ ” “LD 6.2mW$ □□”, “LD Wpホセイ$□□” is switched every time when pressing the YES button. Operation is not necessary for these displays.

5-11. Traverse Adjustment

Note1: If the recorded disc is used for this adjustment, the data is deleted.

Note2: If the traverse waveform is not clear, connect the oscilloscope as shown below so that it can be seen more clearly.

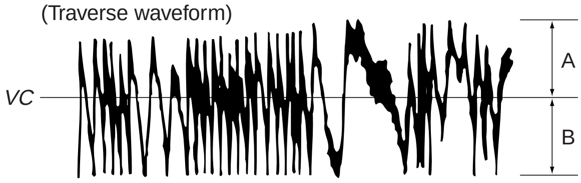




Adjustment procedure:

1. Connect the oscilloscope to the CN110 ③-pin (TEO) and the CN110 ①-pin (VC) of the BD board.
2. Load a recordable disc (any available on the market). (Refer to Note 1.)
   The disc is loaded by pushing the tray.
3. Press the ▶▶ button to move the optical pick-up outside the pit.
4. Rotate the |◁◁AMS▷▷| knob to display “EF MO ADJUS” (C07).
5. Press the YES button to display “EFB = □□ MO-R”.
   (Laser power READ power, focus servo ON, tracking servo OFF, and spindle (S) servo ON are set)
6. Rotate the |◁◁AMS▷▷| knob so that the waveform of the oscilloscope is the specified value. (The figure □□ of the “ EFB = □□ ” and the waveform are changed by rotating the |◁◁AMS▷▷| knob.) In this adjustment. the waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.
   (Read power traverse adjustment)

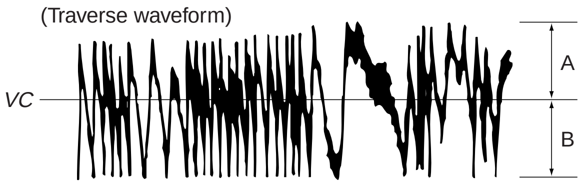
(Traverse waveform)



Specification: A = B

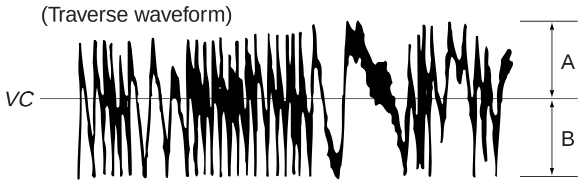
7. Press the YES button to save the adjustment results in the non-volatile memory. (At this time “EFB = □□ SAV” is displayed for a moment, and then “EFB = □□ MO-W” is displayed.)

8. Rotate the I◁◁AMS▷▷I knob so that the waveform of the oscilloscope is the specified value. (The figure □□ of the " EFB = □□" and the waveform are changed by rotating the I◁◁AMS▷▷I knob.) In this adjustment. the waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.
   (Write power traverse adjustment)



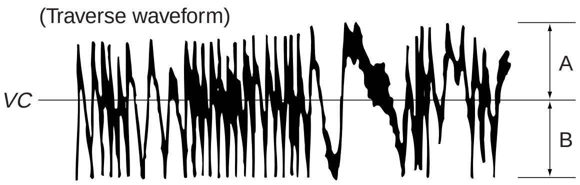
Specification: A = B

9. Press the YES button to save the adjustment results in the non-volatile memory. (At this time "EFB = □□ SAV" is displayed for a moment)
10. "EFB = MO-P" appears and the optical pick-up moves to the internal circumference of the pit area automatically and servo is imposed.
11. Rotate the I◁◁AMS▷▷I knob so that the waveform of the oscilloscope moves closer to the specified value.
    In this adjustment. the waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.
    (Write power traverse adjustment)



Specification: A = B

12. Press the YES button to save the adjustment results in the non-volatile memory. (At this time "EFB = □□ SAV" is displayed for a moment)
    Then, "EF MO ADJUS" (C07) appears and the disc stops rotating automatically.
13. Press the ⏏ button to eject the disc.
14. Load a check disc (TDYS-1).
    The disc is loaded by pushing the tray.
15. Rotate the I◁◁AMS▷▷I knob to display "EF CD ADJUS" (C08).
16. Press the YES button to display "EFB = □□CD". The servo is imposed automatically.
17. Rotate the I◁◁AMS▷▷I knob so that the waveform of the oscilloscope makes closer to the specified value.
    In this adjustment. the waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.



Specification: A = B

18. Press the YES button to save the adjustment results in the non-volatile memory. (At this time "EFB = □□ SAV" is displayed for a moment)
    Then, "EF CD ADJUS" (C08) appears and the disc stops rotating automatically.
19. Press the ⏏ button to eject the check disc.

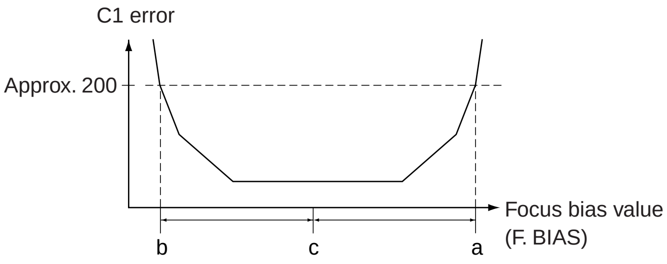
5-12. Focus Bias Adjustment

Adjustment procedure:

1. Load the test disc (MDW-74/GA-1).
   The disc is loaded by pushing the tray.
2. Rotate the I◁◁AMS▷▷I knob to display "CPLAY1MODE" (C34).
3. Press the YES button to display "CPLAY MID".
4. After "C = □□□□ AD = □□" appears, press the MENU/NO button.
5. Rotate the I◁◁AMS▷▷I knob to display "FBIAS CHECK" (C16).
6. Press the YES button to display " □□□□ / □□ a = □□".
   The first four digits indicate the C1 error rate, the two digits after "/" indicate ADER, and the two digits after "a = " indicate the focus bias amount.
7. Rotate the I◁◁AMS▷▷I knob in the clockwise direction and find the focus bias amount at which the C1 error rate becomes approx. 200. (Refer to Note 2.)
8. Press the YES button to display " □□□□ / □□ b = □□ ".
9. Rotate the I◁◁AMS▷▷I knob in the counterclockwise direction and find the focus bias amount at which the C1 error rate becomes approx. 200. (Refer to Note 2.)
   Adjust the I◁◁AMS▷▷I knob so that the C1 error rate becomes almost same value as the value set in step 7.
10. Press the YES button to display " □□□□ / □□ c = □□".
11. Confirm that the C1 error rate is below 50 and the ADER is 00 and press the YES button.
12. If "(□□)" of "□□- □□ (□□)" is above 20, press the YES button.
    If it is below 20, press the MENU/NO button and perform the adjustment from the step 2 again.
13. Press the ⏏ button to eject the test disc.

Note 1: The relation between the C1 error and focus bias is as shown in the following figure. Find points a and b in the following figure using the above adjustment. The focal point position C is automatically calculated from points a and b.

Note 2: As the C1 error rate changes, perform the adjustment using the average value.



5-13. Error Rate Check

5-13-1. CD Error Rate Check

Checking procedure:

1. Load a check disc (TDYS-1).
   The disc is loaded by pushing the tray.
2. Rotate the |◁◁AMS▷▷| knob to display “CPLAY1MODE” (C34).
3. Press the YES button to display “CPLAY1MID”.
4. The display is changed to “C = □□□□AD = □□”.
5. Confirm that the C1 error rate is below 20.
6. Press the MENU/NO button to stop playing back, and press the ⏏ button to eject the check disc.

5-13-2. MO Error Rate Check

Checking procedure:

1. Load a test disc (MDW-74/GA-1).
   The disc is loaded by pushing the tray.
2. Rotate the |◁◁AMS▷▷| knob to display “CPLAY1MODE” (C34).
3. Press the YES button to display “CPLAY1MID”.
4. The display is changed to “C = □□□□AD = □□”.
5. Confirm that the C1 error rate is below 50 and the ADER is below 2.
6. Press the MENU/NO button to stop playing back, and press the ⏏ button to eject the test disc.

5-14. Focus Bias Check

Change the focus bias to check the focus tolerance amount.

Checking procedure:

1. Load the test disc (MDW-74/GA-1).
   The disc is loaded by pushing the tray.
2. Rotate the |◁◁AMS▷▷| knob to display “CPLAY1MODE” (C34).
3. Press the YES button to display “CPLAY1MID”.
4. After “C = □□□□AD =□□” appears, press the MENU/NO button.
5. Rotate the |◁◁AMS▷▷| knob to display “FBIAS CHECK” (C16).
6. Press the YES button to display “□□□□/ □□c = □□”.
   The first four digits indicate the C1 error rate, the two digits after “/” indicate ADER, and the two digits after “c = “ indicate the focus bias amount.
   Confirm that the C1 error is below 50 and the ADER is below 2.
7. Press the YES button to change the display to “□□□□ / □□ b = □□”.
   Confirm that the C1 error is below 200 and the ADER is below 2.
8. Press the YES button to change the display to “□□□□ / □□ a =□□”.
   Confirm that the C1 error is below 200 and the ADER is below 2.
9. Press the MENU/NO button and press the ⏏ button to eject the test disc.

Note 1 : If the C1 error and ADER are out of the specified value at points a (step 8) or b (step 7), the focus bias adjustment may not have been carried out properly. Perform the adjustment from the beginning again.

5-15. Auto Gain Control Output Level Adjustment

Be sure to perform this adjustment when optical pick-up is replaced. When result of adjustment ends with the message “Adjust NG!”, the optical pick-up may be defective. Perform the adjustment again.

5-15-1. CD Auto Gain Control Output Level Adjustment

Adjustment procedure:

1. Load the test disc (TDYS-1).
   The disc is loaded by pushing the tray.
2. Rotate the |◁◁AMS▷▷| knob to display “AG Set (CD)” (C11).
3. Press the YES button to start automatic adjustment. After the adjustment results are saved in the non-volatile memory and “Complete!” appears, the display is changed to “AG Set (CD)” (C11) and the adjustments are completed.
4. Press the MENU/NO button and press the !! button to eject the check disc.

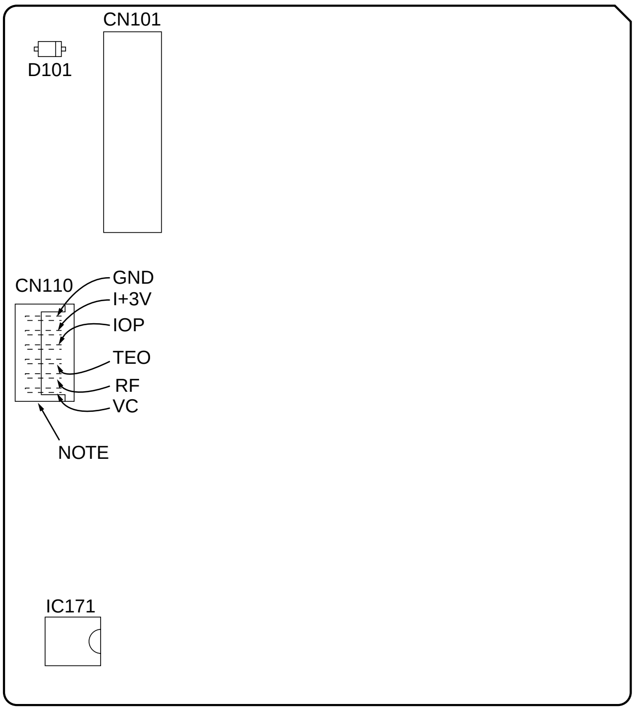
5-15-2. MO Auto Gain Control Output Level Adjustment

Adjustment procedure:

1. Load the test disc (MDW-74/GA-1).
   The disc is loaded by pushing the tray.
2. Rotate the |◁◁AMS▷▷| knob to display “AG Set (MO)” (C10).
3. Press the YES button to start automatic adjustment. After the adjustment results are saved in the non-volatile memory and “Complete!” appears, the display is changed to “AG Set (MO)” (C10) and the adjustments are completed.
4. Press the MENU/NO button and press the ⏏ button to eject the check disc.

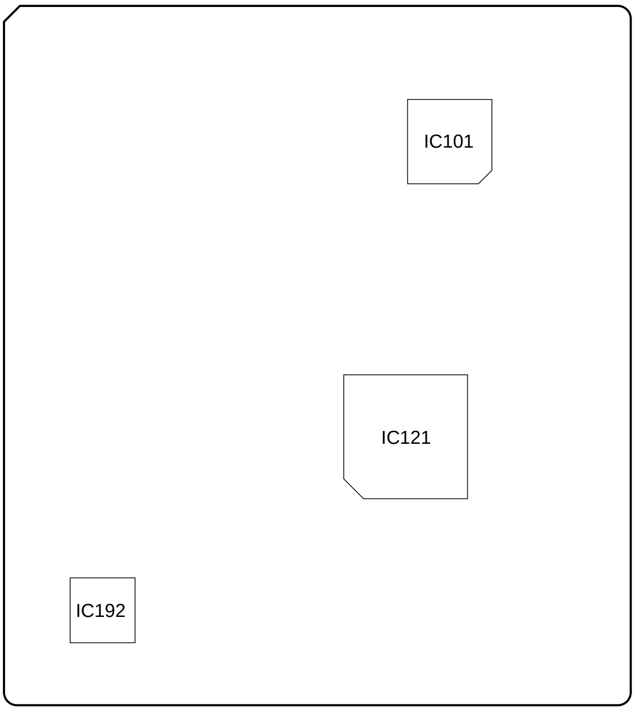
5-16. Adjusting Points and Connecting Points

[BD BOARD] (SIDE A)


CN101
D101
CN110
GND
I+3V
IOP
TEO
RF
VC
NOTE
IC171

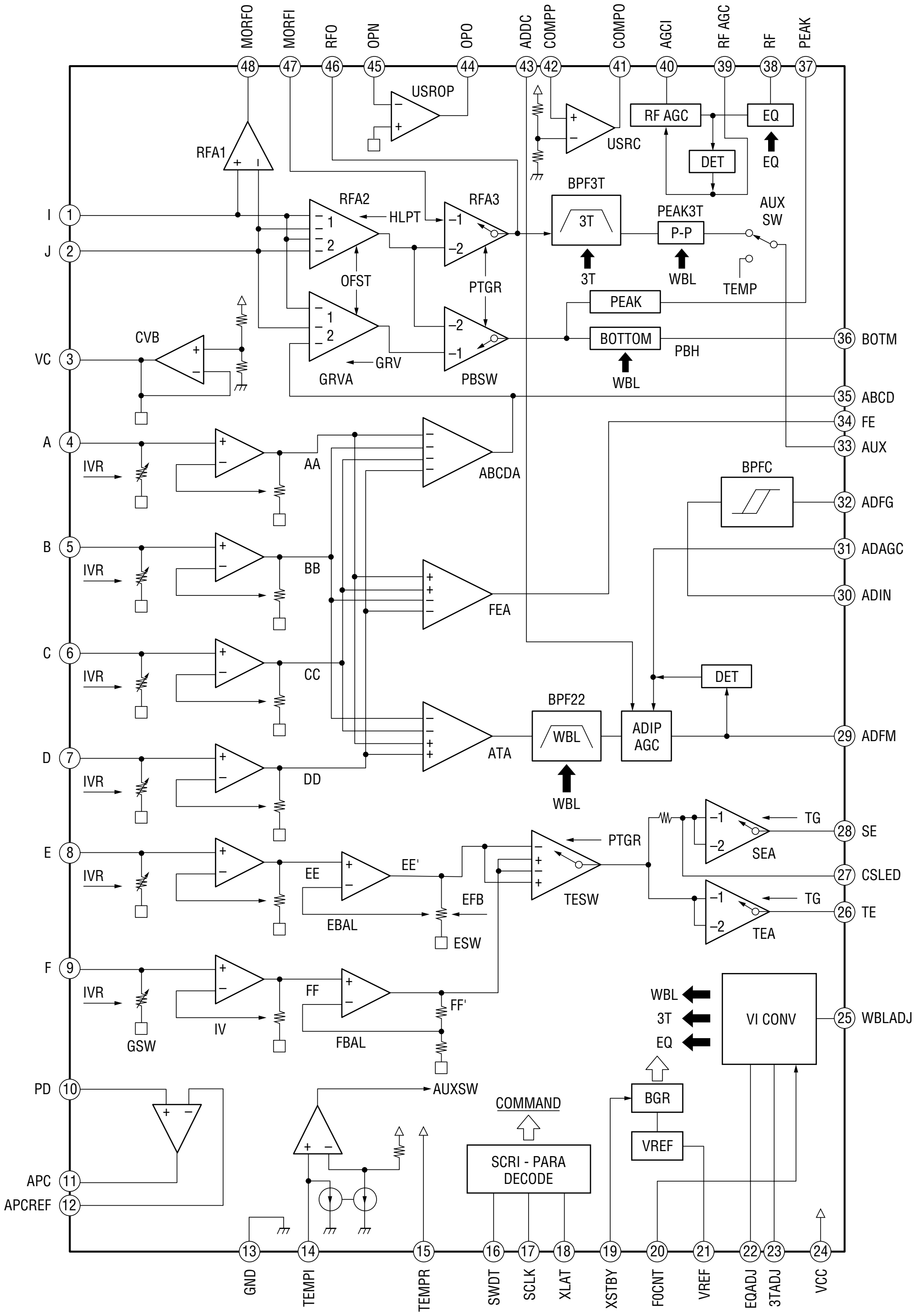
Note: It is recommended to use the tool for BD board waveform check when the waveform is checked.
(Refer to page 7 of Service note.)

[BD BOARD] (SIDE B)


IC101
IC121
IC192

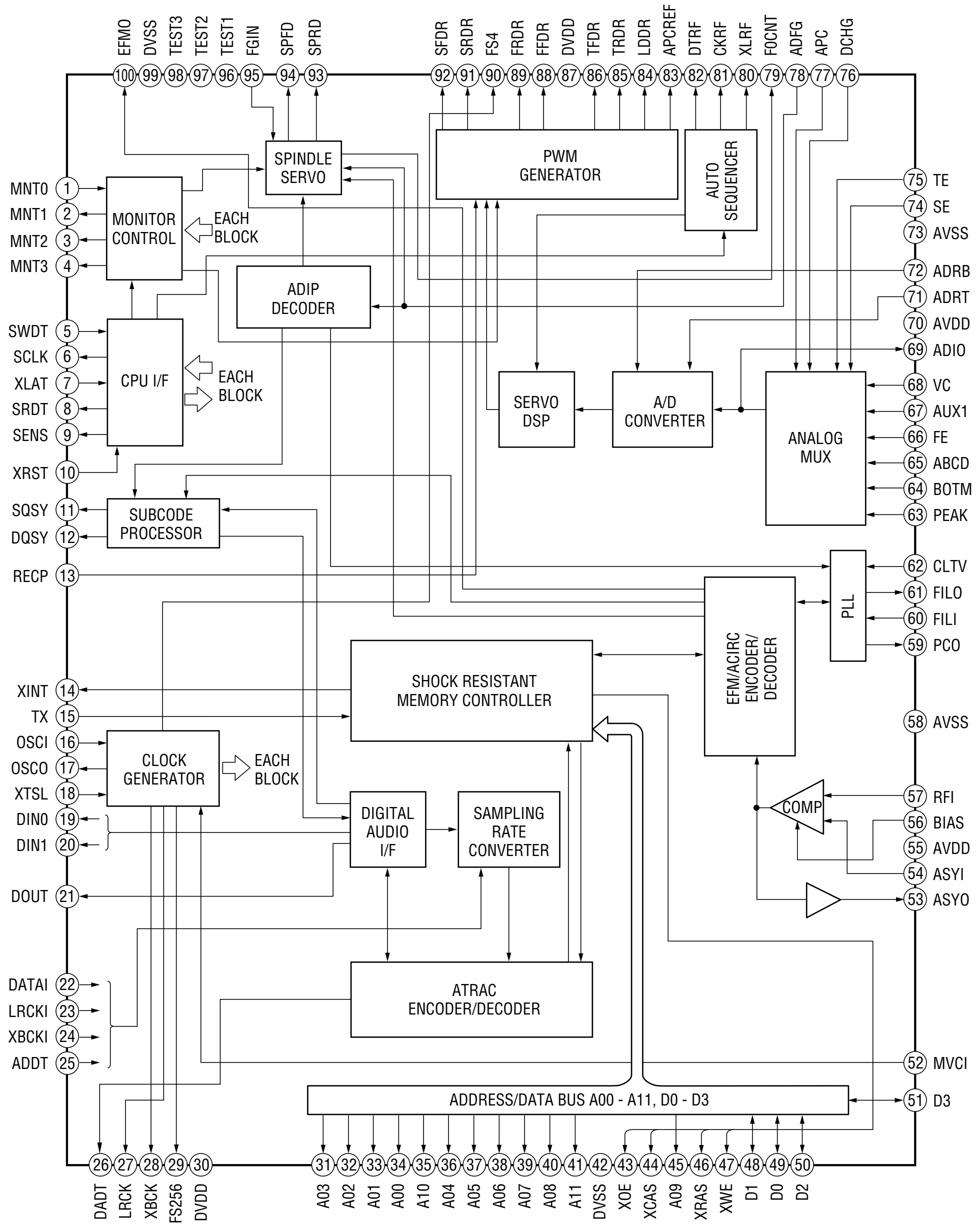
6-22. IC BLOCK DIAGRAMS

IC101 CXA2523AR (BD BOARD)

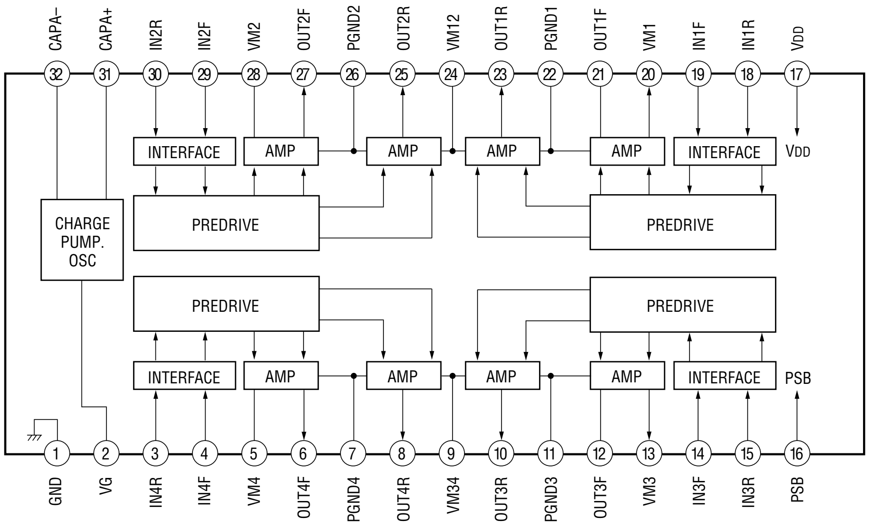


MORFO 48
MORFI 47
RFO 46
OPN 45
OPO 44
ADDC 43
COMPP 42
COMPO 41
AGCI 40
RF AGC 39
RF 38
PEAK 37
USROP
USRC
RFA1
RF AGC
EQ
DET
EQ
RFA2
HLPT
RFA3
BPF3T
3T
PEAK3T
P-P
AUX SW
OFST
PTGR
3T
WBL
TEMP
PEAK
BOTTOM
PBH
WBL
I 1
J 2
CVB
VC 3
GRV
GRVA
PBSW
36 BOTM
35 ABCD
34 FE
33 AUX
A 4
IVR
AA
ABCDA
BPFC
32 ADFG
B 5
IVR
BB
FEA
31 ADAGC
30 ADIN
C 6
IVR
CC
DET
BPF22
WBL
ADIP AGC
29 ADFM
D 7
IVR
DD
ATA
WBL
TG
28 SE
E 8
IVR
EE
EE'
PTGR
SEA
TESW
27 CSLED
EFB
EBAL
ESW
TG
26 TE
TEA
F 9
IVR
FF
FF'
GSW
IV
FBAL
WBL
3T
EQ
VI CONV
25 WBLADJ
PD 10
APC 11
APCREF 12
AUXSW
COMMAND
BGR
VREF
SCRI - PARA DECODE
13 GND
14 TEMPI
15 TEMPR
16 SWDT
17 SCLK
18 XLAT
19 XSTBY
20 FOCNT
21 VREF
22 EQADJ
23 3TADJ
24 VCC

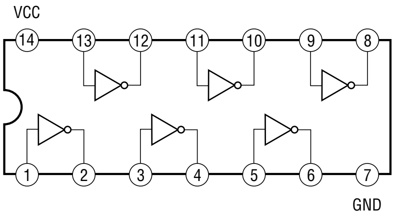
IC121 CXD2662R (BD BOARD)


EFMO 100
DVSS 99
TEST3 98
TEST2 97
TEST1 96
FGIN 95
SPFD 94
SPRD 93
SFDR 92
SRDR 91
FS4 90
FRDR 89
FFDR 88
DVDD 87
TFDR 86
TRDR 85
LDDR 84
APCREF 83
DTRF 82
CKRF 81
XLRF 80
FOCNT 79
ADFG 78
APC 77
DCHG 76
MNT0 1
MNT1 2
MNT2 3
MNT3 4
SWDT 5
SCLK 6
XLAT 7
SRDT 8
SENS 9
XRST 10
SQSY 11
DQSY 12
RECP 13
XINT 14
TX 15
OSCI 16
OSCO 17
XTSL 18
DIN0 19
DIN1 20
DOUT 21
DATAI 22
LRCKI 23
XBCKI 24
ADDT 25
75 TE
74 SE
73 AVSS
72 ADRB
71 ADRT
70 AVDD
69 ADIO
68 VC
67 AUX1
66 FE
65 ABCD
64 BOTM
63 PEAK
62 CLTV
61 FILO
60 FILI
59 PCO
58 AVSS
57 RFI
56 BIAS
55 AVDD
54 ASYI
53 ASYO
52 MVCI
51 D3
26 DADT
27 LRCK
28 XBCK
29 FS256
30 DVDD
31 A03
32 A02
33 A01
34 A00
35 A10
36 A04
37 A05
38 A06
39 A07
40 A08
41 A11
42 DVSS
43 XOE
44 XCAS
45 A09
46 XRAS
47 XWE
48 D1
49 D0
50 D2
SPINDLE SERVO
PWM GENERATOR
AUTO SEQUENCER
MONITOR CONTROL
EACH BLOCK
ADIP DECODER
CPU I/F
EACH BLOCK
SERVO DSP
A/D CONVERTER
ANALOG MUX
SUBCODE PROCESSOR
PLL
EFM/ACIRC ENCODER/ DECODER
SHOCK RESISTANT MEMORY CONTROLLER
CLOCK GENERATOR
EACH BLOCK
COMP
DIGITAL AUDIO I/F
SAMPLING RATE CONVERTER
ATRAC ENCODER/DECODER
ADDRESS/DATA BUS A00 - A11, D0 - D3

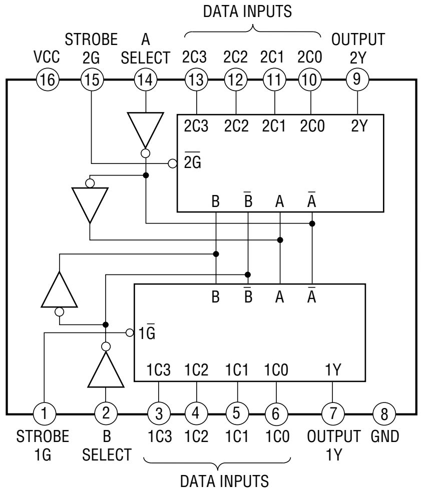
IC152 BH6511FS (BD BOARD)


CAPA– 32
CAPA+ 31
IN2R 30
IN2F 29
VM2 28
OUT2F 27
PGND2 26
OUT2R 25
VM12 24
OUT1R 23
PGND1 22
OUT1F 21
VM1 20
IN1F 19
IN1R 18
VDD 17
INTERFACE
AMP
AMP
AMP
AMP
INTERFACE
VDD
CHARGE PUMP. OSC
PREDRIVE
PREDRIVE
PREDRIVE
PREDRIVE
INTERFACE
AMP
AMP
AMP
AMP
INTERFACE
PSB
1 GND
2 VG
3 IN4R
4 IN4F
5 VM4
6 OUT4F
7 PGND4
8 OUT4R
9 VM34
10 OUT3R
11 PGND3
12 OUT3F
13 VM3
14 IN3F
15 IN3R
16 PSB

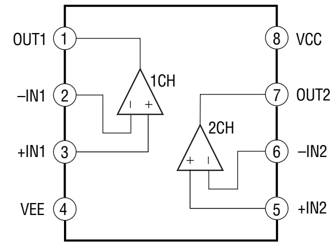
IC404,406 **SN74HCU04ANS-E05** (DIO BOARD)


VCC
14
13
12
11
10
9
8
1
2
3
4
5
6
7
GND

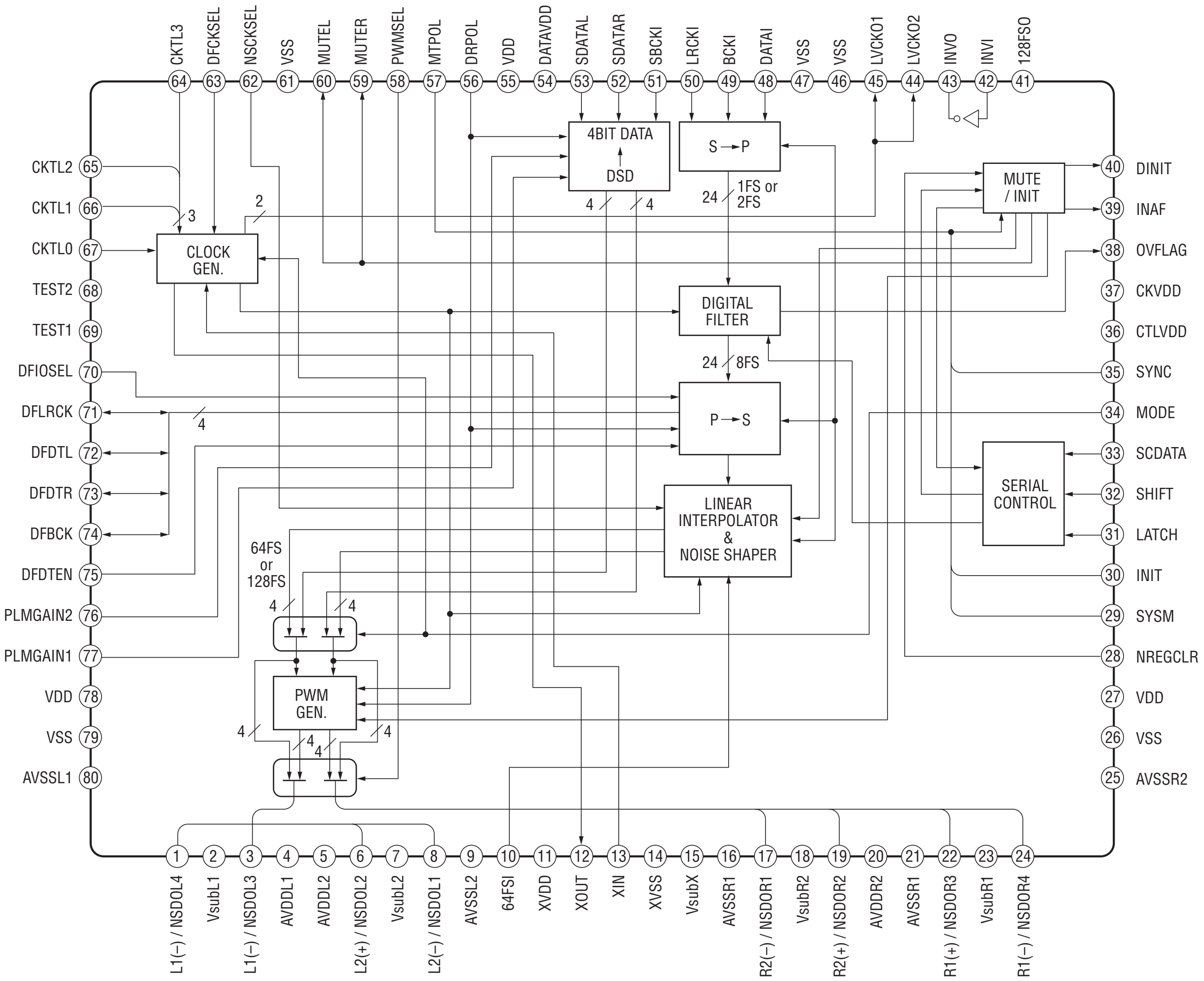
IC405 **SN74HC153ANS-E05** (DIO BOARD)


DATA INPUTS
STROBE
2G
A
SELECT
VCC
2C3
2C2
2C1
2C0
OUTPUT
2Y
16
15
14
13
12
11
10
9
2C3
2C2
2C1
2C0
2Y
$\overline{2G}$
B
$\bar{B}$
A
$\bar{A}$
B
$\bar{B}$
A
$\bar{A}$
$1\overline{G}$
1C3
1C2
1C1
1C0
1Y
1
2
3
4
5
6
7
8
STROBE
1G
B
SELECT
1C3
1C2
1C1
1C0
OUTPUT
1Y
GND
DATA INPUTS

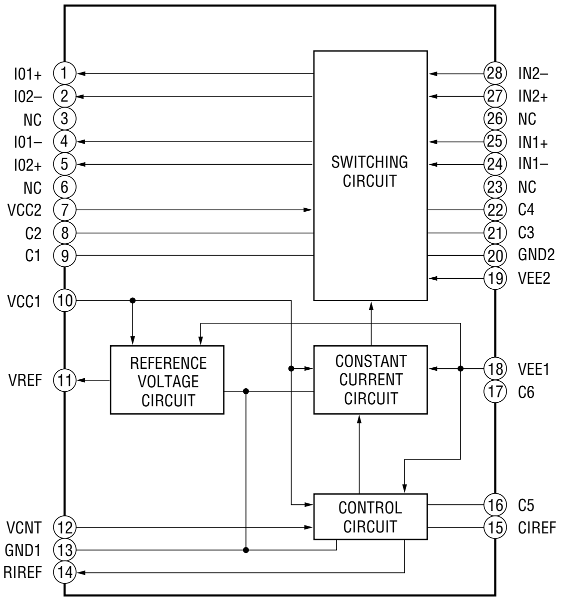
IC651 **M5218AP** (HP BOARD)


OUT1
1
–IN1
2
+IN1
3
VEE
4
1CH
2CH
8
VCC
7
OUT2
6
–IN2
5
+IN2

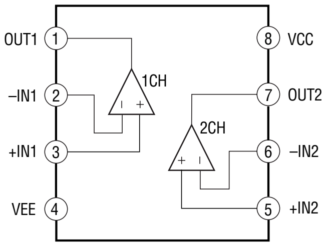
IC501 **CXD9556AQ** (DA BOARD)


CKTL3
DFCKSEL
NSCKSEL
VSS
MUTEL
MUTER
PWMSEL
MTPOL
DRPOL
VDD
DATAVDD
SDATAL
SDATAR
SBCKI
LRCKI
BCKI
DATAI
VSS
VSS
LVCKO1
LVCKO2
INVO
INVI
128FSO
64
63
62
61
60
59
58
57
56
55
54
53
52
51
50
49
48
47
46
45
44
43
42
41
CKTL2
65
CKTL1
66
CKTL0
67
TEST2
68
TEST1
69
DFIOSEL
70
DFLRCK
71
DFDTL
72
DFDTR
73
DFBCK
74
DFDTEN
75
PLMGAIN2
76
PLMGAIN1
77
VDD
78
VSS
79
AVSSL1
80
40
DINIT
39
INAF
38
OVFLAG
37
CKVDD
36
CTLVDD
35
SYNC
34
MODE
33
SCDATA
32
SHIFT
31
LATCH
30
INIT
29
SYSM
28
NREGCLR
27
VDD
26
VSS
25
AVSSR2
4BIT DATA
DSD
S → P
1FS or
2FS
24
4
4
MUTE
/ INIT
CLOCK
GEN.
3
2
DIGITAL
FILTER
24
8FS
P → S
4
LINEAR
INTERPOLATOR
&
NOISE SHAPER
SERIAL
CONTROL
64FS
or
128FS
4
4
PWM
GEN.
4
4
4
4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
L1(–) / NSDOL4
VsubL1
L1(–) / NSDOL3
AVDDL1
AVDDL2
L2(+) / NSDOL2
VsubL2
L2(–) / NSDOL1
AVSSL2
64FSI
XVDD
XOUT
XIN
XVSS
VsubX
AVSSR1
R2(–) / NSDOR1
VsubR2
R2(+) / NSDOR2
AVDDR2
AVSSR1
R1(+) / NSDOR3
VsubR1
R1(–) / NSDOR4

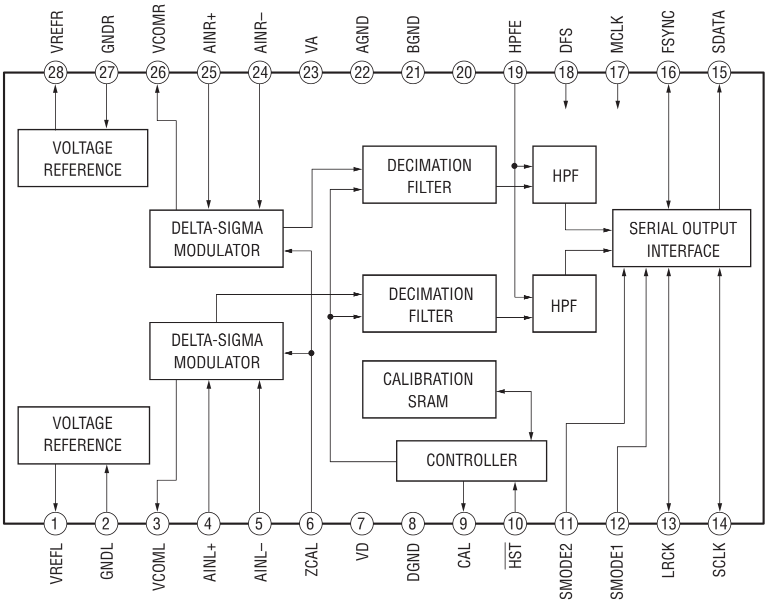
IC504,505 CXA8042AS (DA BOARD)


I01+ 1
I02– 2
NC 3
I01– 4
I02+ 5
NC 6
VCC2 7
C2 8
C1 9
VCC1 10
VREF 11
VCNT 12
GND1 13
RIREF 14
SWITCHING CIRCUIT
REFERENCE VOLTAGE CIRCUIT
CONSTANT CURRENT CIRCUIT
CONTROL CIRCUIT
28 IN2–
27 IN2+
26 NC
25 IN1+
24 IN1–
23 NC
22 C4
21 C3
20 GND2
19 VEE2
18 VEE1
17 C6
16 C5
15 CIREF

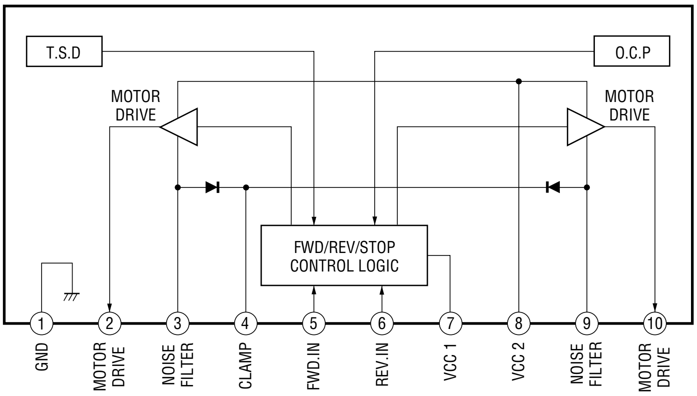
IC305,306,307,308 NJM2114D (AD BOARD)


OUT1 1
–IN1 2
+IN1 3
VEE 4
1CH
2CH
8 VCC
7 OUT2
6 –IN2
5 +IN2

IC302 AK5383VF (AD BOARD)

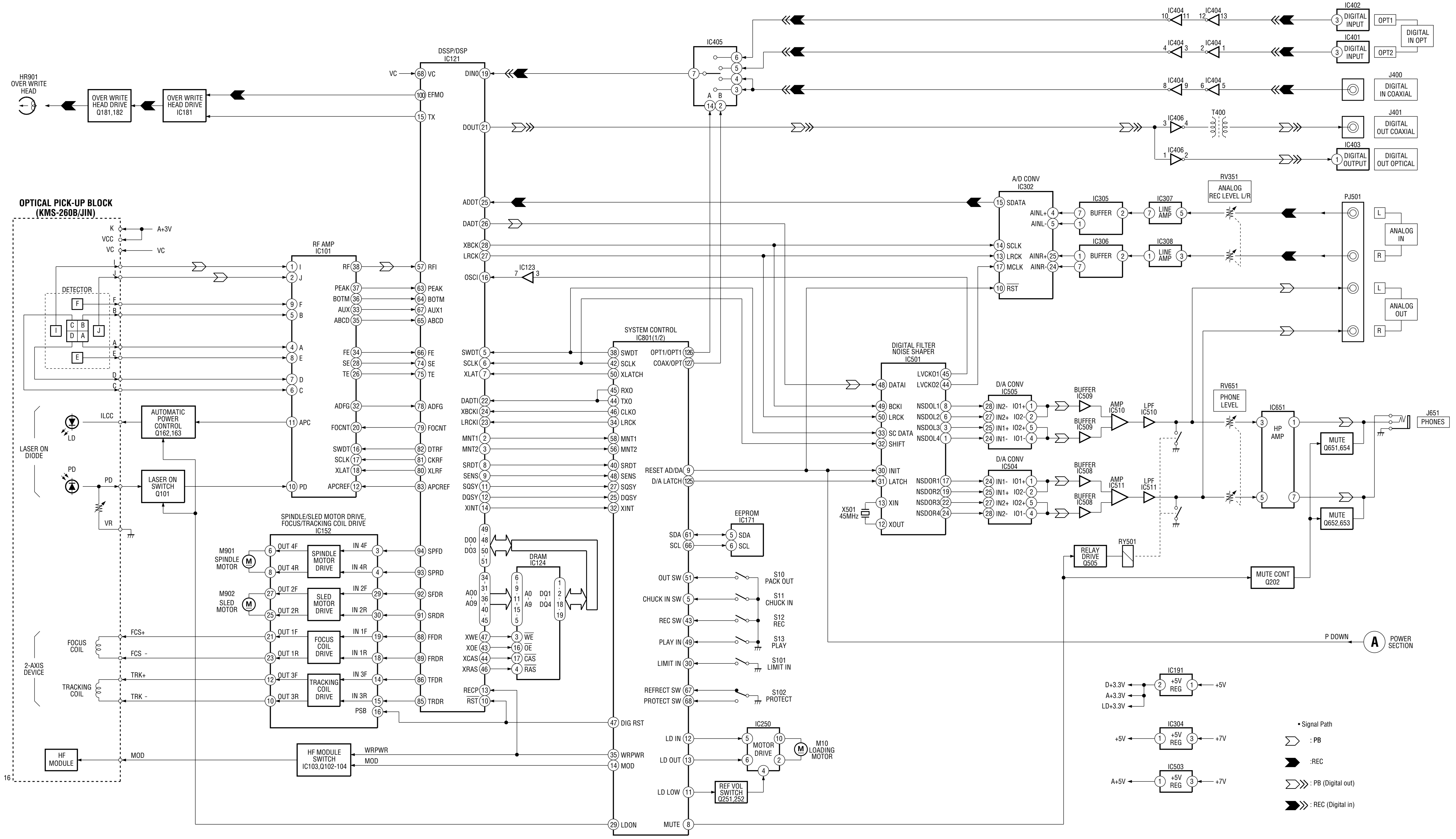

VREFR 28
GNDR 27
VCOMR 26
AINR+ 25
AINR– 24
VA 23
AGND 22
BGND 21
20
HPFE 19
DFS 18
MCLK 17
FSYNC 16
SDATA 15
VOLTAGE REFERENCE
DELTA-SIGMA MODULATOR
DECIMATION FILTER
HPF
SERIAL OUTPUT INTERFACE
DELTA-SIGMA MODULATOR
DECIMATION FILTER
HPF
CALIBRATION SRAM
VOLTAGE REFERENCE
CONTROLLER
1 VREFL
2 GNDL
3 VCOML
4 AINL+
5 AINL–
6 ZCAL
7 VD
8 DGND
9 CAL
10 HST
11 SMODE2
12 SMODE1
13 LRCK
14 SCLK

IC250 LB1641 (POW BOARD)

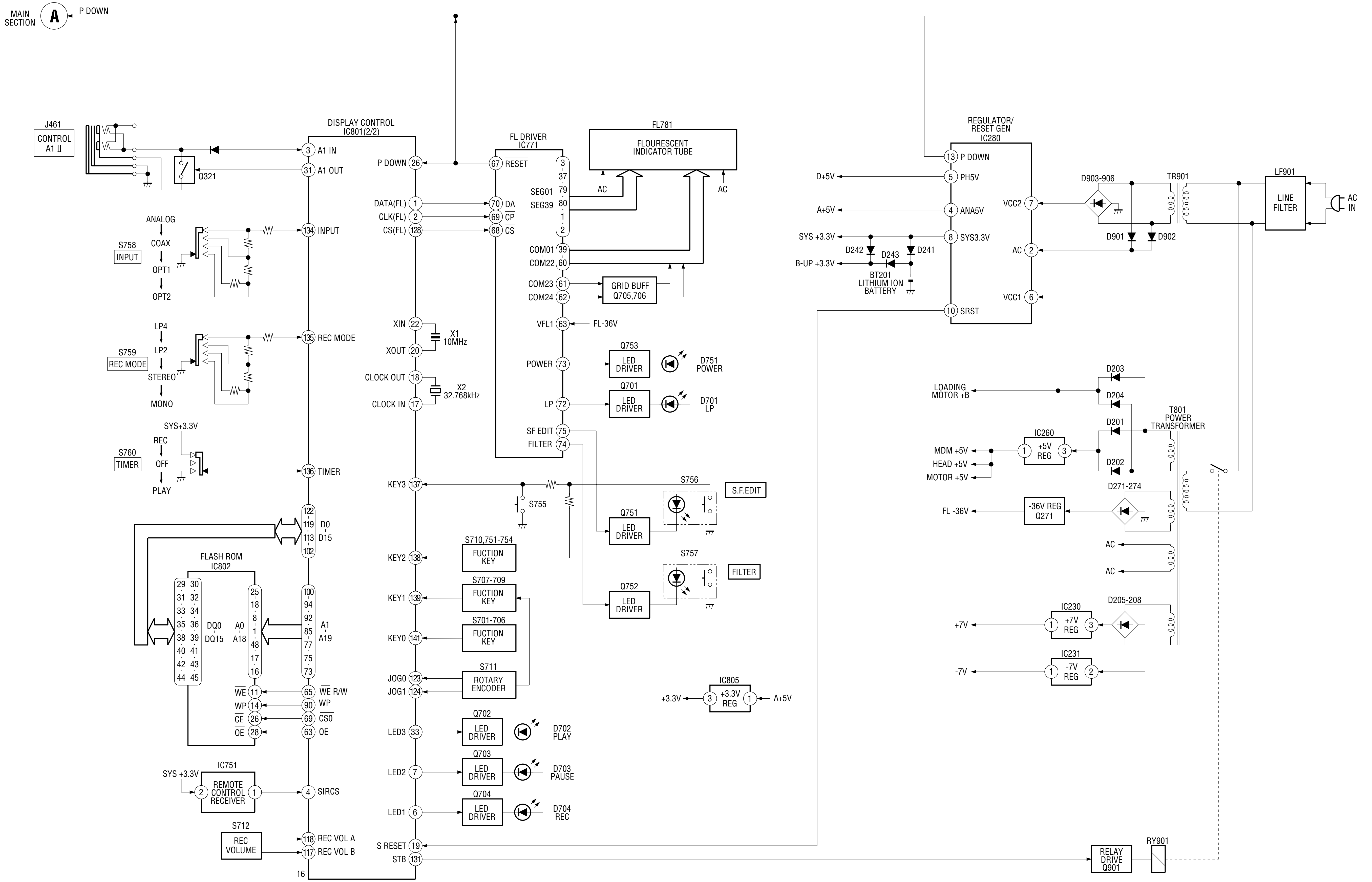

T.S.D
O.C.P
MOTOR DRIVE
MOTOR DRIVE
FWD/REV/STOP CONTROL LOGIC
1
2
3
4
5
6
7
8
9
10
GND
MOTOR DRIVE
NOISE FILTER
CLAMP
FWD.IN
REV.IN
VCC 1
VCC 2
NOISE FILTER
MOTOR DRIVE

SECTION 6
DIAGRAMS

6-1. BLOCK DIAGRAMS
MAIN SECTION


HR901
OVER WRITE
HEAD
OVER WRITE HEAD DRIVE Q181,182
OVER WRITE HEAD DRIVE IC181
DSSP/DSP IC121
VC
VC
EFMO
TX
DIN0
DOUT
ADDT
DADT
XBCK
LRCK
OSCI
IC123
RFI
PEAK
BOTM
AUX1
ABCD
FE
SE
TE
ADFG
FOCNT
DTRF
CKRF
XLRF
APCREF
SWDT
SCLK
XLAT
DADTI
XBCKI
LRCKI
MNT1
MNT2
SRDT
SENS
SQSY
DQSY
XINT
DQ0
DQ3
A00
A09
XWE
XOE
XCAS
XRAS
RECP
RST
SPFD
SPRD
SFDR
SRDR
FFDR
FRDR
TFDR
TRDR
DRAM IC124
A0
A9
DQ1
DQ4
WE
OE
CAS
RAS
OPTICAL PICK-UP BLOCK (KMS-260B/JIN)
K
VCC
VC
A+3V
DETECTOR
F
B
C
D
A
E
I
J
LASER ON DIODE
LD
PD
ILCC
VR
AUTOMATIC POWER CONTROL Q162,163
LASER ON SWITCH Q101
RF AMP IC101
I
J
F
B
A
E
D
C
APC
PD
RF
PEAK
BOTM
AUX
ABCD
FE
SE
TE
ADFG
FOCNT
SWDT
SCLK
XLAT
APCREF
SPINDLE/SLED MOTOR DRIVE, FOCUS/TRACKING COIL DRIVE IC152
M901 SPINDLE MOTOR
SPINDLE MOTOR DRIVE
M902 SLED MOTOR
SLED MOTOR DRIVE
FOCUS COIL DRIVE
TRACKING COIL DRIVE
OUT 4F
OUT 4R
OUT 2F
OUT 2R
OUT 1F
OUT 1R
OUT 3F
OUT 3R
IN 4F
IN 4R
IN 2F
IN 2R
IN 1F
IN 1R
IN 3F
IN 3R
PSB
2-AXIS DEVICE
FOCUS COIL
TRACKING COIL
FCS+
FCS -
TRK+
TRK -
HF MODULE
MOD
HF MODULE SWITCH IC103,Q102-104
WRPWR
MOD
16
SYSTEM CONTROL IC801(1/2)
SWDT
SCLK
XLATCH
RXO
TXO
CLKO
LRCK
MNT1
MNT2
SRDT
SENS
SQSY
DQSY
XINT
DIG RST
WRPWR
MOD
LDON
OPT1/OPT1
COAX/OPT
RESET AD/DA
D/A LATCH
SDA
SCL
OUT SW
CHUCK IN SW
REC SW
PLAY IN
LIMIT IN
REFRECT SW
PROTECT SW
LD IN
LD OUT
LD LOW
MUTE
EEPROM IC171
SDA
SCL
S10 PACK OUT
S11 CHUCK IN
S12 REC
S13 PLAY
S101 LIMIT IN
S102 PROTECT
IC250
MOTOR DRIVE
M10 LOADING MOTOR
REF VOL SWITCH Q251,252
IC405
A B
IC404
IC402 DIGITAL INPUT
IC401 DIGITAL INPUT
OPT1
OPT2
DIGITAL IN OPT
J400 DIGITAL IN COAXIAL
IC406
T400
J401 DIGITAL OUT COAXIAL
IC403 DIGITAL OUTPUT
DIGITAL OUT OPTICAL
A/D CONV IC302
SDATA
AINL+
AINL-
SCLK
LRCK
MCLK
RST
AINR+
AINR-
IC305 BUFFER
IC307 LINE AMP
IC306 BUFFER
IC308 LINE AMP
RV351 ANALOG REC LEVEL L/R
PJ501
L
R
ANALOG IN
ANALOG OUT
DIGITAL FILTER NOISE SHAPER IC501
DATAI
BCKI
LRCK
SC DATA
SHIFT
INIT
LATCH
XIN
XOUT
LVCKO1
LVCKO2
NSDOL1
NSDOL2
NSDOL3
NSDOL4
NSDOR1
NSDOR2
NSDOR3
NSDOR4
X501 45MHz
D/A CONV IC505
D/A CONV IC504
IN2-
IN2+
IN1+
IN1-
IO1+
IO2-
IO2+
IO1-
BUFFER IC509
BUFFER IC508
AMP IC510
AMP IC511
LPF IC510
LPF IC511
RV651 PHONE LEVEL
IC651 HP AMP
J651 PHONES
MUTE Q651,654
MUTE Q652,653
RELAY DRIVE Q505
RY501
MUTE CONT Q202
P DOWN
A
POWER SECTION
IC191 +5V REG
D+3.3V
A+3.3V
LD+3.3V
+5V
IC304 +5V REG
+5V
+7V
IC503 +5V REG
A+5V
+7V
• Signal Path
: PB
:REC
: PB (Digital out)
: REC (Digital in)

DISPLAY/POWER SUPPLY SECTION


MAIN SECTION
A
P DOWN
J461
CONTROL A1 []
Q321
DISPLAY CONTROL IC801(2/2)
3 A1 IN
31 A1 OUT
P DOWN 26
DATA(FL) 1
CLK(FL) 2
CS(FL) 128
134 INPUT
ANALOG
COAX
OPT1
OPT2
S758 INPUT
135 REC MODE
LP4
LP2
STEREO
MONO
S759 REC MODE
SYS+3.3V
REC
OFF
PLAY
S760 TIMER
136 TIMER
XIN 22
XOUT 20
X1 10MHz
CLOCK OUT 18
CLOCK IN 17
X2 32.768kHz
KEY3 137
S755
122 119 D0
113 D15 102
FLASH ROM IC802
29 30 31 32 33 34 35 36 38 39 40 41 42 43 44 45
DQ0 DQ15
25 18 8 1 48 17 16
A0 A18
100 94 92 85 77 75 73
A1 A19
WE 11
WP 14
CE 26
OE 28
65 WE R/W
90 WP
69 CS0
63 OE
KEY2 138
KEY1 139
KEY0 141
JOG0 123
JOG1 124
S710,751-754 FUCTION KEY
S707-709 FUCTION KEY
S701-706 FUCTION KEY
S711 ROTARY ENCODER
IC751
SYS +3.3V
2 REMOTE CONTROL RECEIVER 1
4 SIRCS
S712 REC VOLUME
118 REC VOL A
117 REC VOL B
16
LED3 33
LED2 7
LED1 6
Q702 LED DRIVER
D702 PLAY
Q703 LED DRIVER
D703 PAUSE
Q704 LED DRIVER
D704 REC
S RESET 19
STB 131
FL DRIVER IC771
67 RESET
70 DA
69 CP
68 CS
SEG01 3 37
SEG39 79 80 1 2
COM01 39
COM22 60
COM23 61
COM24 62
GRID BUFF Q705,706
VFL1 63
FL-36V
POWER 73
Q753 LED DRIVER
D751 POWER
LP 72
Q701 LED DRIVER
D701 LP
SF EDIT 75
FILTER 74
S756
S.F.EDIT
Q751 LED DRIVER
S757
FILTER
Q752 LED DRIVER
FL781
FLOURESCENT INDICATOR TUBE
AC
AC
IC805
+3.3V 3 +3.3V REG 1 A+5V
REGULATOR/ RESET GEN IC280
13 P DOWN
5 PH5V
4 ANA5V
8 SYS3.3V
10 SRST
VCC2 7
AC 2
VCC1 6
D+5V
A+5V
SYS +3.3V
B-UP +3.3V
D242
D243
D241
BT201 LITHIUM ION BATTERY
D903-906
TR901
LF901
LINE FILTER
AC IN
D901
D902
LOADING MOTOR +B
D203
D204
D201
D202
T801 POWER TRANSFORMER
IC260
MDM +5V
HEAD +5V
MOTOR +5V
1 +5V REG 3
D271-274
FL -36V
-36V REG Q271
AC
AC
D205-208
IC230
+7V
1 +7V REG 3
IC231
-7V
1 -7V REG 2
RELAY DRIVE Q901
RY901

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

Note on Schematic Diagram:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- ⊡ : nonflammable resistor.
- ⊸ : fusible resistor.
- ▭ : panel designation.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

- **B+** : B+ Line.
- **B–** : B– Line.
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path.
  - ▷ : PB
  - ▶ : REC
  - ▷» : PB (DIGITAL)
  - ▶» : REC (DIGITAL)

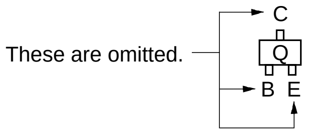
Note on Printed Wiring Boards:

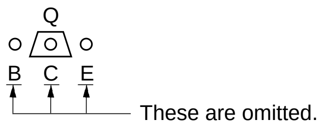
- o——— : parts extracted from the component side.
- ——— : parts extracted from the conductor side.
- ░ : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

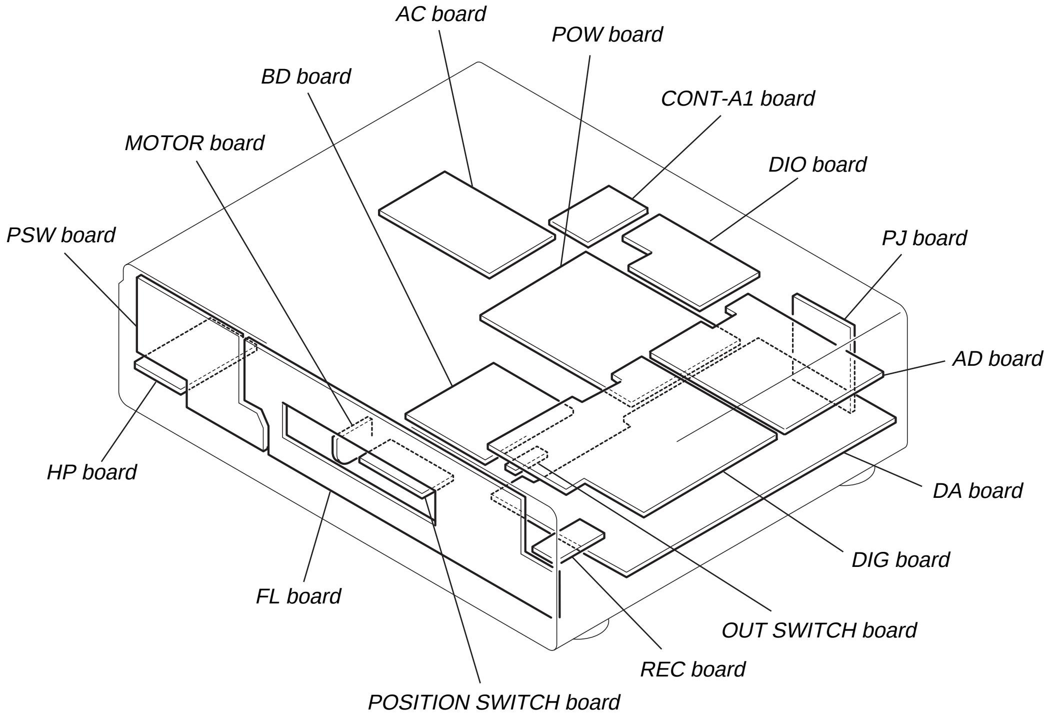
Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

- Indication of transistor.


These are omitted.
C
Q
B E

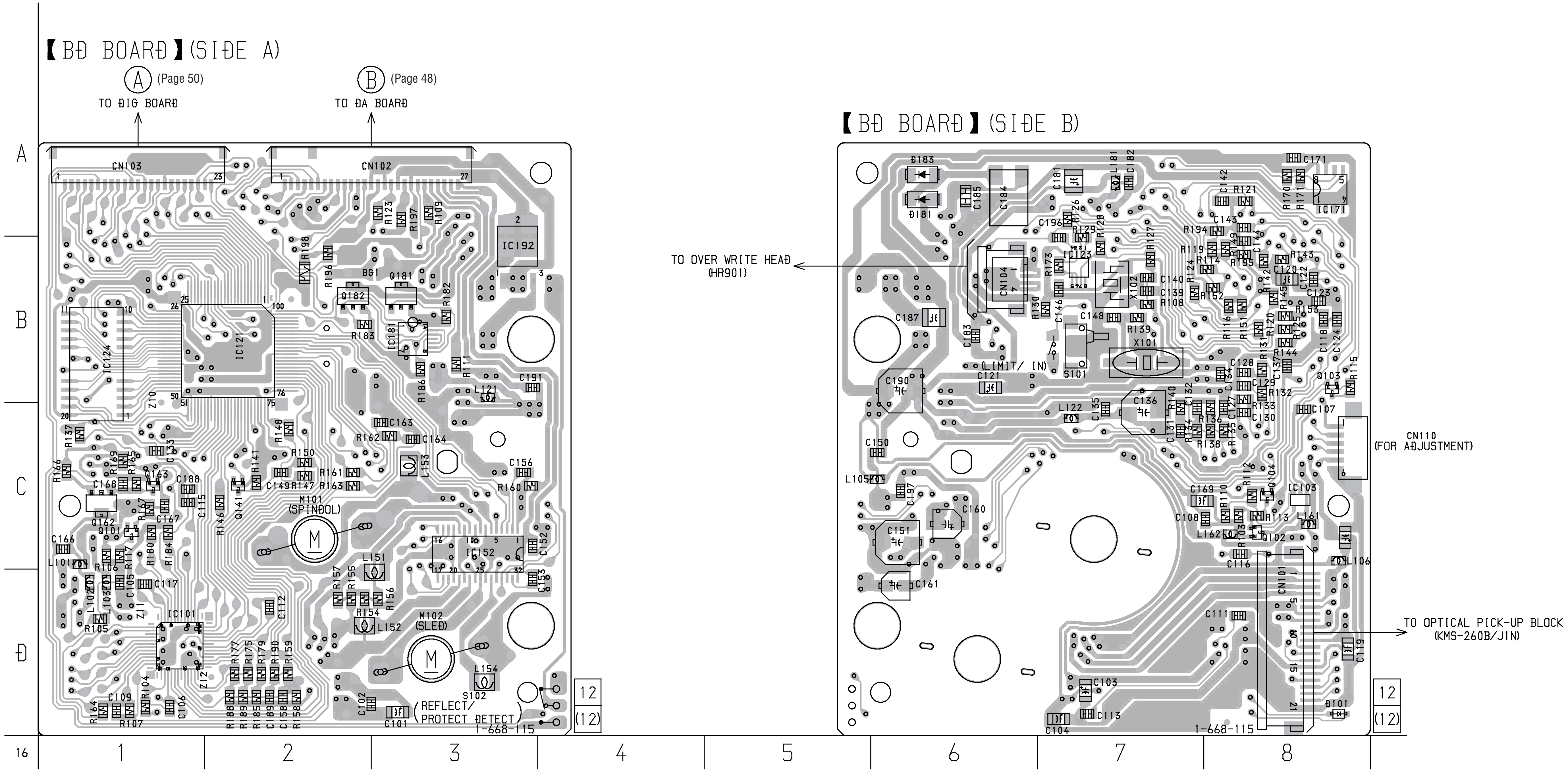

Q
B C E
These are omitted.

6-2. CIRCUIT BOARD LOCATION


AC board
POW board
BD board
CONT-A1 board
MOTOR board
DIO board
PSW board
PJ board
AD board
HP board
DA board
DIG board
FL board
OUT SWITCH board
REC board
POSITION SWITCH board

6-3. PRINTED WIRING BOARD BD SECTION

• Refer to page 39 for Note on Printed Wiring Boards. • Refer to page 39 for Circuit Board Location.

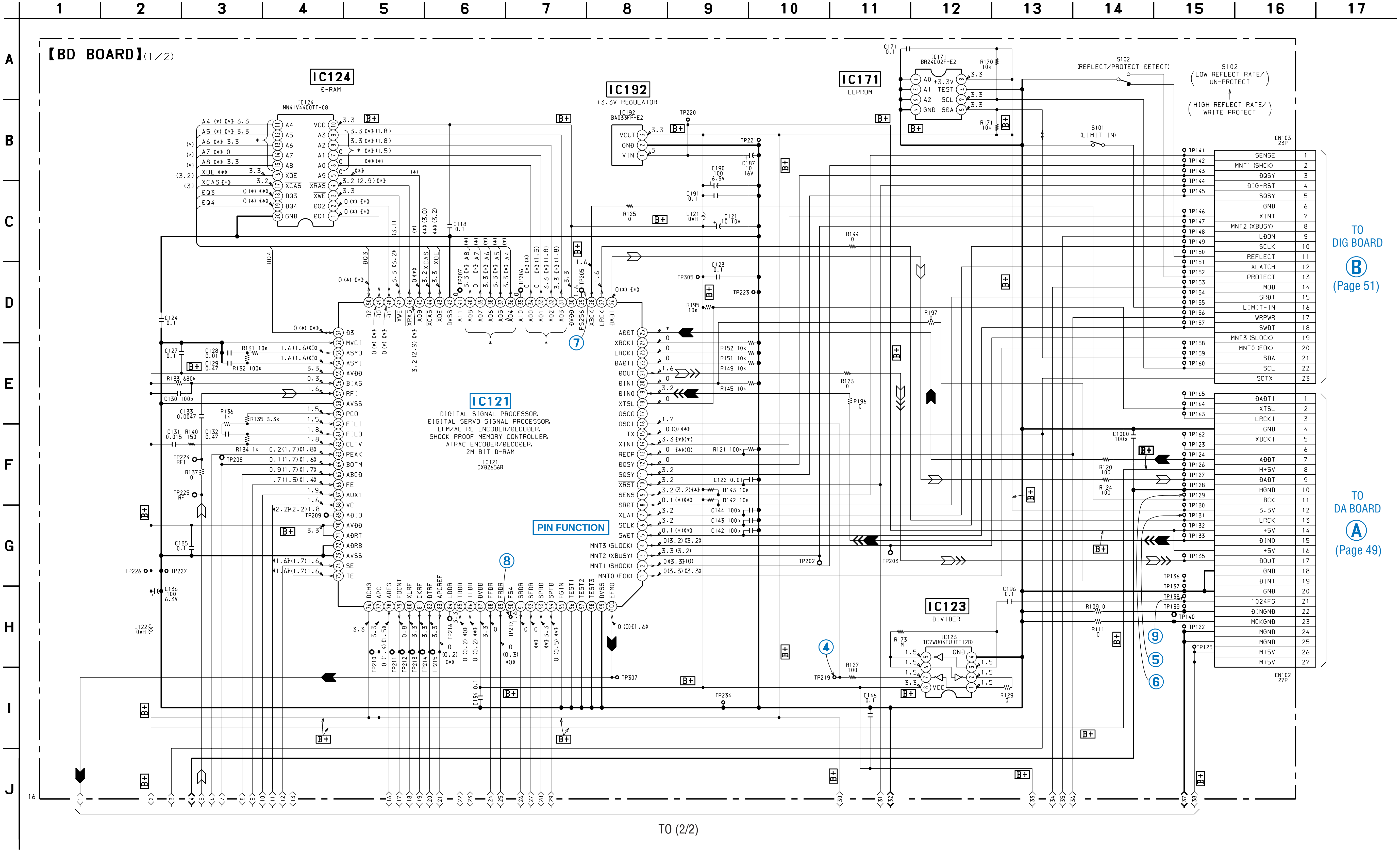

【BD BOARD】(SIDE A)
A (Page 50)
TO DIG BOARD
B (Page 48)
TO DA BOARD
【BD BOARD】(SIDE B)
TO OVER WRITE HEAD (HR901)
CN110 (FOR ADJUSTMENT)
TO OPTICAL PICK-UP BLOCK (KMS-260B/J1N)
CN103
CN102
IC192
IC121
IC124
IC101
IC152
M101 (SPINDOL)
M102 (SLED)
S102 (REFLECT/ PROTECT DETECT)
S101 (LIMIT/ IN)
CN104
CN101
IC123
IC171
IC103
X101
X102
1-668-115
12
(12)
A
B
C
D
16
1
2
3
4
5
6
7
8

• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D101	D-8	Q101	C-1
D181	A-6	Q102	C-8
D183	A-6	Q103	B-8
		Q104	C-8
IC101	D-1	Q162	C-1
IC103	C-8	Q163	C-1
IC121	B-2	Q181	B-3
IC123	B-7	Q182	B-2
IC124	B-1		
IC152	C-3		
IC171	A-8		
IC181	B-3		
IC192	B-3		

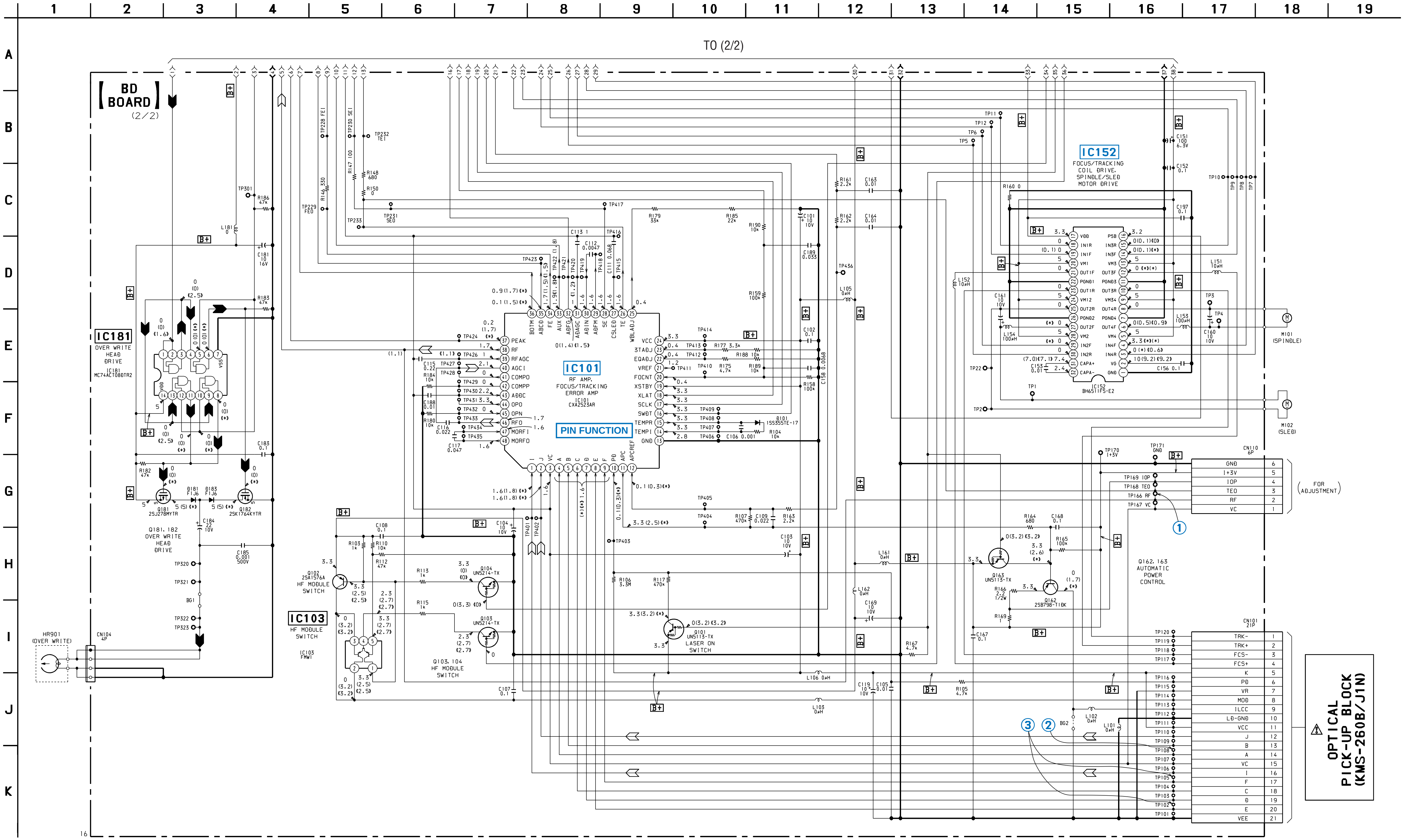
6-4. SCHEMATIC DIAGRAM BD SECTION (1/2)

- Refer to page 39 for Note on Schematic Diagrams.
- Refer to page 60 for Waveforms.
- Refer to page 61 for IC Block Diagram.
- Refer to page 67 for IC Pin Function.


【BD BOARD】(1/2)
IC124 D-RAM
IC124 MN41V4400TT-08
IC192 +3.3V REGULATOR
IC192 BA033FP-E2
IC171 EEPROM
IC171 BR24C02F-E2
S102 (REFLECT/PROTECT DETECT)
S102 (LOW REFLECT RATE/ UN-PROTECT) (HIGH REFLECT RATE/ WRITE PROTECT)
S101 (LIMIT IN)
IC121
DIGITAL SIGNAL PROCESSOR, DIGITAL SERVO SIGNAL PROCESSOR, EFM/ACIRC ENCODER/DECODER, SHOCK PROOF MEMORY CONTROLLER, ATRAC ENCODER/DECODER, 2M BIT D-RAM
IC121 CXD2656R
PIN FUNCTION
IC123 DIVIDER
IC123 TC7WU04FU (TE12R)
CN103 23P
SENSE, MNT1 (SHCK), DQSY, DIG-RST, SQSY, GND, XINT, MNT2 (XBUSY), LDON, SCLK, REFLECT, XLATCH, PROTECT, MOD, SRDT, LIMIT-IN, WRPWR, SWDT, MNT3 (SLOCK), MNT0 (FOK), SDA, SCL, SCTX
TO DIG BOARD B (Page 51)
CN102 27P
DADTI, XTSL, LRCKI, GND, XBCKI, ADDT, H+5V, DADT, HGND, BCK, 3.3V, LRCK, +5V, DINO, +5V, DOUT, GND, DIN1, GND, 1024FS, DINGND, MCKGND, MGND, MGND, M+5V, M+5V
TO DA BOARD A (Page 49)
TO (2/2)
①–⑨

6-5. SCHEMATIC DIAGRAM BD SECTION (2/2)

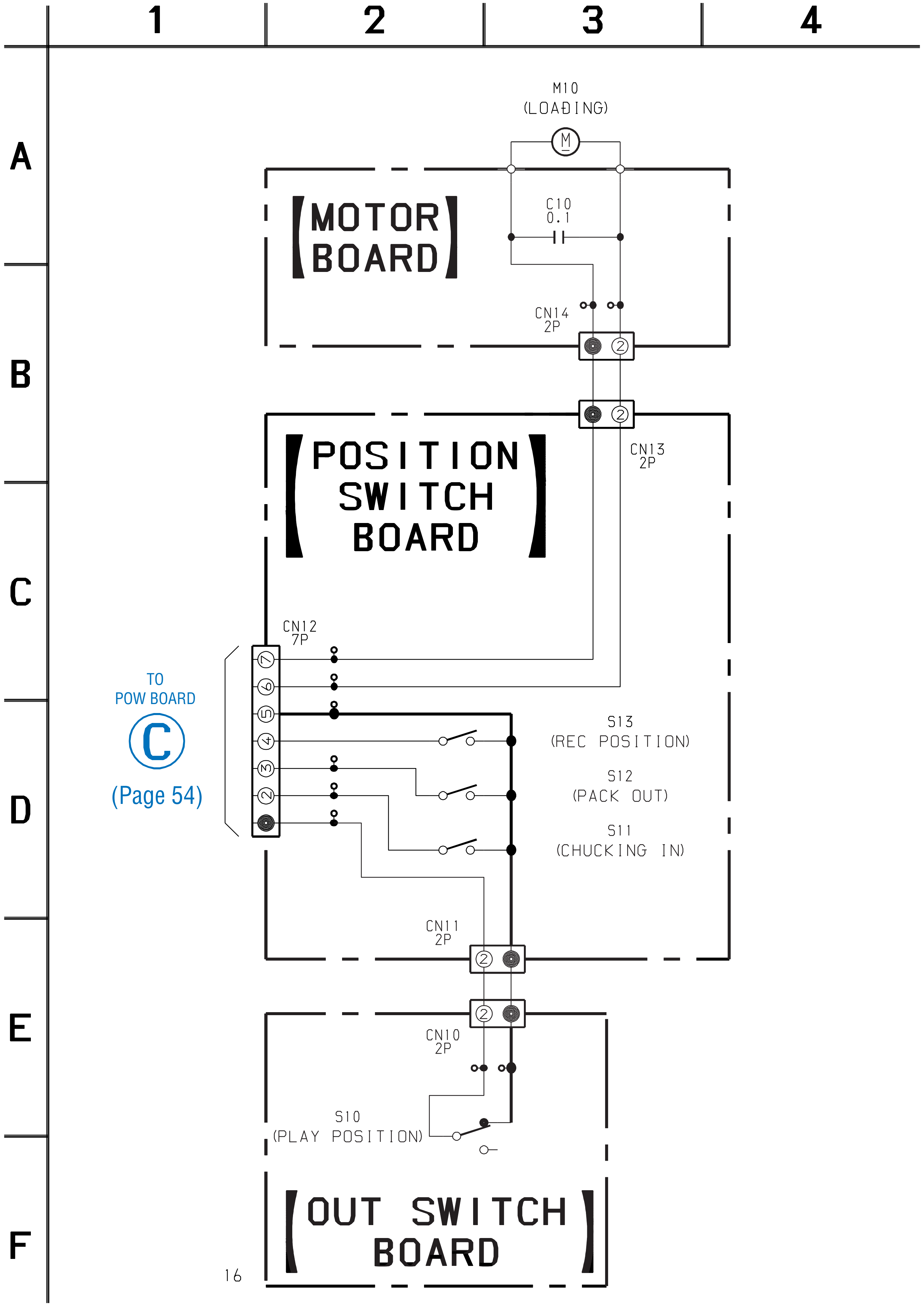
- Refer to page 39 for Note on Schematic Diagrams.
- Refer to page 60 for Waveforms.
- Refer to page 61 for IC Block Diagrams.
- Refer to page 66 for IC Pin Function.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
A B C D E F G H I J K
TO (2/2)
BD BOARD (2/2)
IC181
OVER WRITE HEAD DRIVE
IC181 MC74ACT08DTR2
Q181, 182 OVER WRITE HEAD DRIVE
Q181 2SJ278MYTR
Q182 2SK1764KYTR
HR901 (OVER WRITE)
CN104 4P
IC101
RF AMP, FOCUS/TRACKING ERROR AMP
IC101 CXA2523AR
PIN FUNCTION
IC103
HF MODULE SWITCH
IC103 FMW1
Q102 2SA1576A HF MODULE SWITCH
Q103, 104 HF MODULE SWITCH
Q103 UN5214-TX
Q104 UN5214-TX
Q101 UN5113-TX LASER ON SWITCH
IC152
FOCUS/TRACKING COIL DRIVE, SPINDLE/SLED MOTOR DRIVE
IC152 BH6511FS-E2
M101 (SPINDLE)
M102 (SLED)
Q162, 163 AUTOMATIC POWER CONTROL
Q162 2SB798-T1DK
Q163 UN5113-TX
CN110 6P
GND
I+3V
IOP
TEO
RF
VC
(FOR ADJUSTMENT)
CN101 21P
TRK-
TRK+
FCS-
FCS+
K
PD
VR
MOD
ILCC
LD-GND
VCC
J
B
A
VC
I
F
C
D
E
VEE
⚠ OPTICAL PICK-UP BLOCK (KMS-260B/J1N)
①
②
③

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

6-6. SCHEMATIC DIAGRAM BD SWITCH SECTION

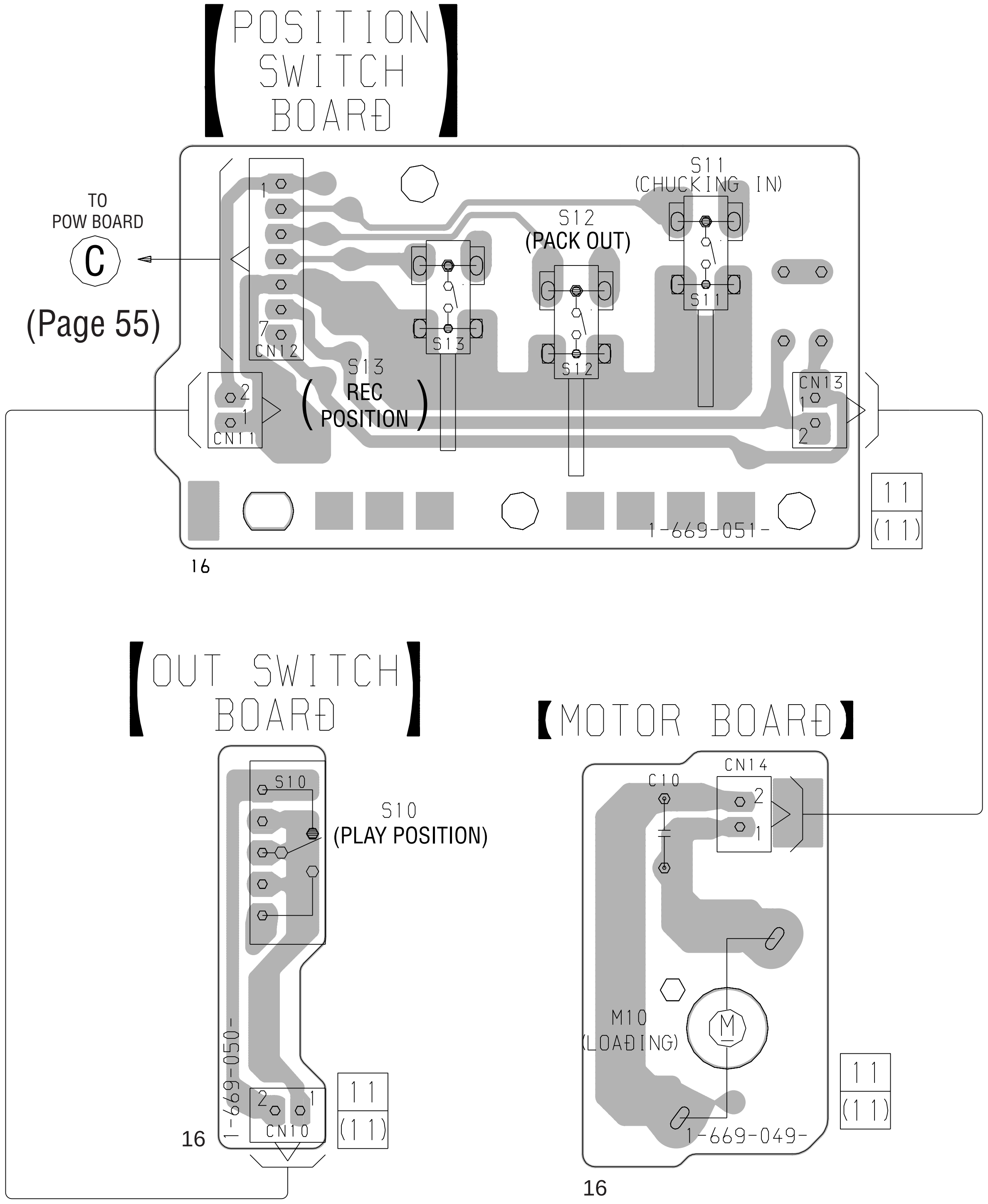
- Refer to page 39 for Note on Schematic Diagrams.


1
2
3
4
A
B
C
D
E
F
M10
(LOADING)
M
MOTOR BOARD
C10
0.1
CN14
2P
POSITION SWITCH BOARD
CN13
2P
CN12
7P
TO
POW BOARD
C
(Page 54)
S13
(REC POSITION)
S12
(PACK OUT)
S11
(CHUCKING IN)
CN11
2P
CN10
2P
S10
(PLAY POSITION)
OUT SWITCH BOARD
16

6-7. PRINTED WIRING BOARD BD SWITCH SECTION

- Refer to page 39 for Note on Printed Wiring Boards.
- Refer to page 39 for Circuit Board Location.

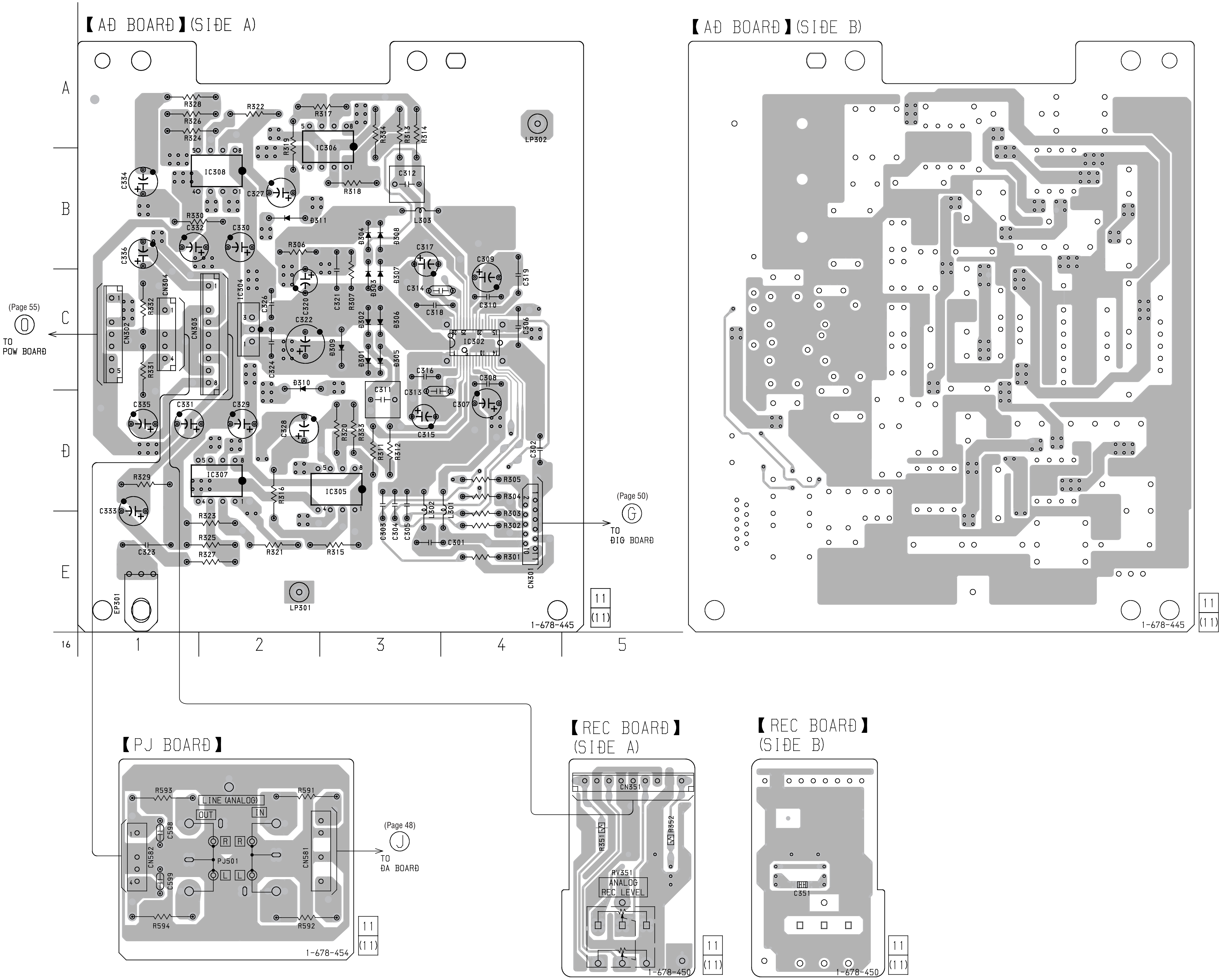
There are few cases that the part printed on this diagram isn't mounted in this model.


POSITION SWITCH BOARD
TO
POW BOARD
C
(Page 55)
CN12
S13
REC
POSITION
S12
(PACK OUT)
S11
(CHUCKING IN)
CN11
CN13
1-669-051-
11
(11)
16
OUT SWITCH BOARD
S10
S10
(PLAY POSITION)
CN10
1-669-050-
11
(11)
16
MOTOR BOARD
C10
CN14
M10
(LOADING)
M
1-669-049-
11
(11)
16

6-8. PRINTED WIRING BOARD AD SECTION

• Refer to page 39 for Note on Printed Wiring Boards. • Refer to page 39 for Circuit Board Location.

There are few cases that the part printed on this diagram isn't mounted in this model.

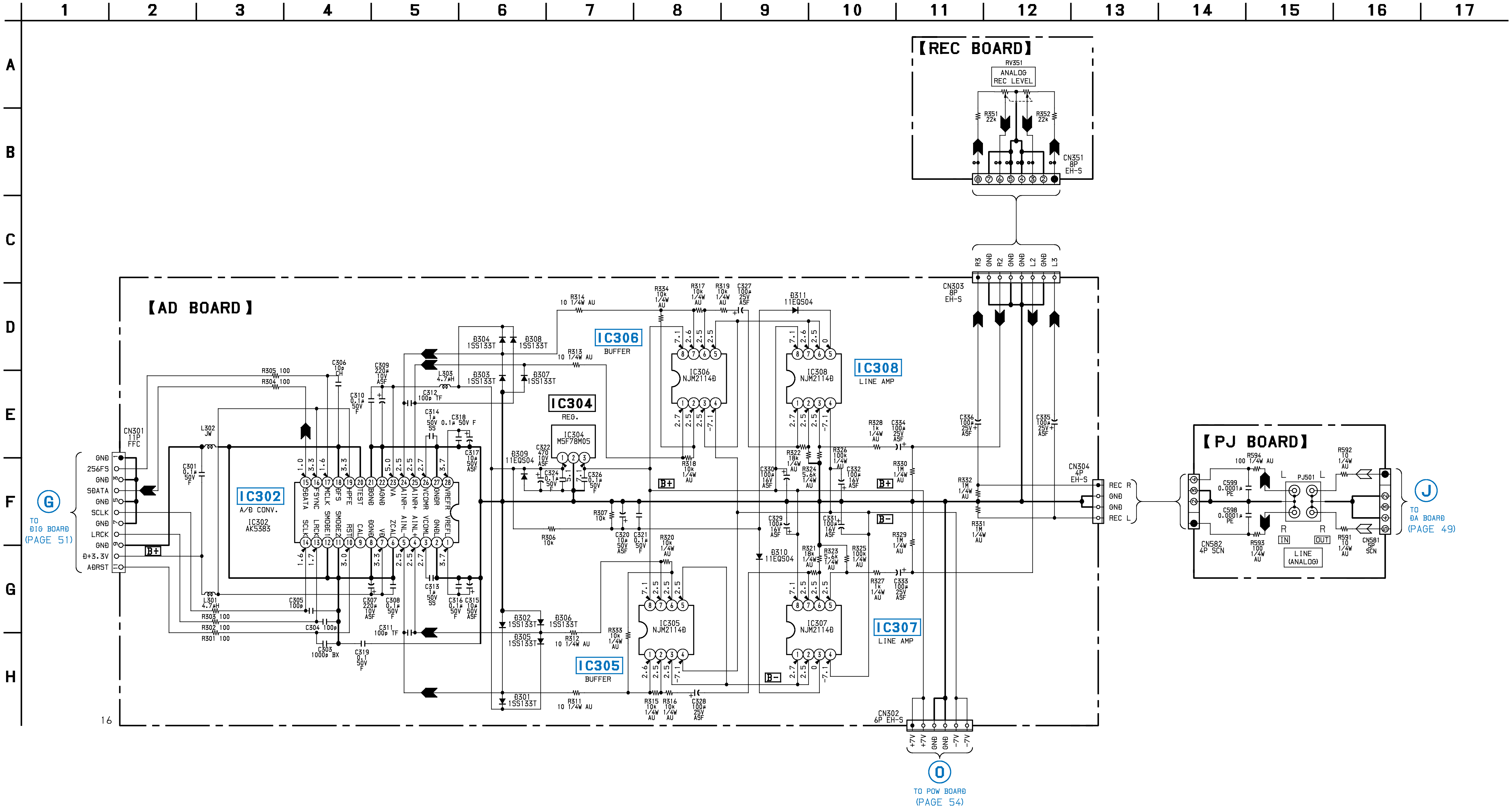

【AD BOARD】(SIDE A)
【AD BOARD】(SIDE B)
A
B
C
D
E
1
2
3
4
5
16
(Page 55)
O
TO POW BOARD
(Page 50)
G
TO DIG BOARD
CN301
CN302
CN303
CN304
IC302
IC304
IC305
IC306
IC307
IC308
LP301
LP302
EP301
L301
L302
L303
R301
R302
R303
R304
R305
R306
R307
R311
R312
R313
R314
R315
R316
R317
R318
R319
R320
R321
R322
R323
R324
R325
R326
R327
R328
R329
R330
R331
R332
R333
R334
C301
C302
C303
C304
C305
C306
C307
C308
C309
C310
C311
C312
C313
C314
C315
C316
C317
C318
C319
C320
C321
C322
C323
C324
C326
C327
C328
C329
C330
C331
C332
C333
C334
C335
C336
D301
D302
D303
D304
D305
D306
D307
D308
D309
D310
D311
11
(11)
1-678-445
【PJ BOARD】
R591
R592
R593
R594
C598
C599
CN581
CN582
PJ501
LINE (ANALOG)
OUT
IN
R
L
(Page 48)
J
TO DA BOARD
1-678-454
【REC BOARD】(SIDE A)
【REC BOARD】(SIDE B)
CN351
R351
R352
RV351
ANALOG REC LEVEL
C351
1-678-450

• Semiconductor Location

Ref. No.	Location
D301	C-3
D302	C-3
D303	C-3
D304	B-3
D305	C-3
D306	C-3
D307	C-3
D308	B-3
D309	C-3
D310	C-2
D311	B-2
IC302	C-4
IC304	C-2
IC305	D-3
IC306	A-3
IC307	D-2
IC308	B-2

6-9. SCHEMATIC DIAGRAM AD SECTION

• Refer to page 39 for Note on Schematic Diagrams. • Refer to page 64 for IC Block Diagrams.


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
【REC BOARD】
RV351
ANALOG REC LEVEL
R351 22k
R352 22k
CN351 8P EH-S
R3
GND
R2
GND
GND
L2
GND
L3
CN303 8P EH-S
【AD BOARD】
IC306
BUFFER
IC306 NJM2114D
IC308
LINE AMP
IC308 NJM2114D
IC304
REG.
IC304 M5F78M05
IC302
A/D CONV.
IC302 AK5383
IC305
BUFFER
IC305 NJM2114D
IC307
LINE AMP
IC307 NJM2114D
D304 1SS133T
D308 1SS133T
D303 1SS133T
D307 1SS133T
D309 11EQS04
D311 11EQS04
D310 11EQS04
D302 1SS133T
D306 1SS133T
D305 1SS133T
D301 1SS133T
L302 JW
L303 4.7μH
L301 4.7μH
CN301 11P FFC
GND
256FS
GND
SDATA
GND
SCLK
GND
LRCK
GND
D+3.3V
ADRST
G
TO DIG BOARD (PAGE 51)
B+
B−
CN304 4P EH-S
REC R
GND
GND
REC L
CN302 6P EH-S
+7V
+7V
GND
GND
−7V
−7V
O
TO POW BOARD (PAGE 54)
【PJ BOARD】
PJ501
R594 100 1/4W AU
R592 10 1/4W AU
R593 100 1/4W AU
R591 10 1/4W AU
C599 0.0001μ PE
C598 0.0001μ PE
CN582 4P SCN
CN581 5P SCN
L
R
IN
OUT
LINE (ANALOG)
J
TO DA BOARD (PAGE 49)
16

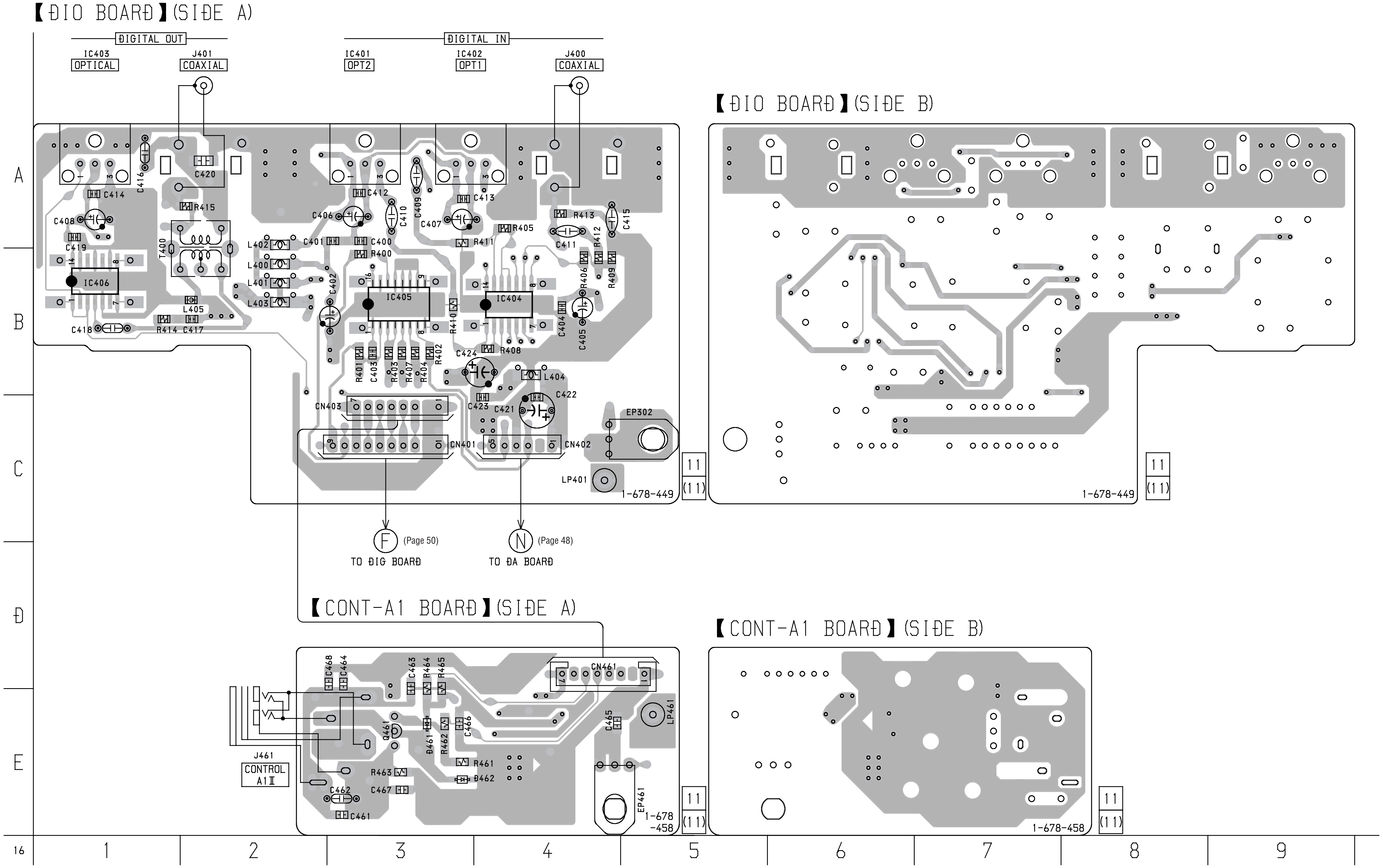
6-10. PRINTED WIRING BOARD DIO SECTION

• Refer to page 39 for Note on Printed Wiring Boards. • Refer to page 39 for Circuit Board Location.

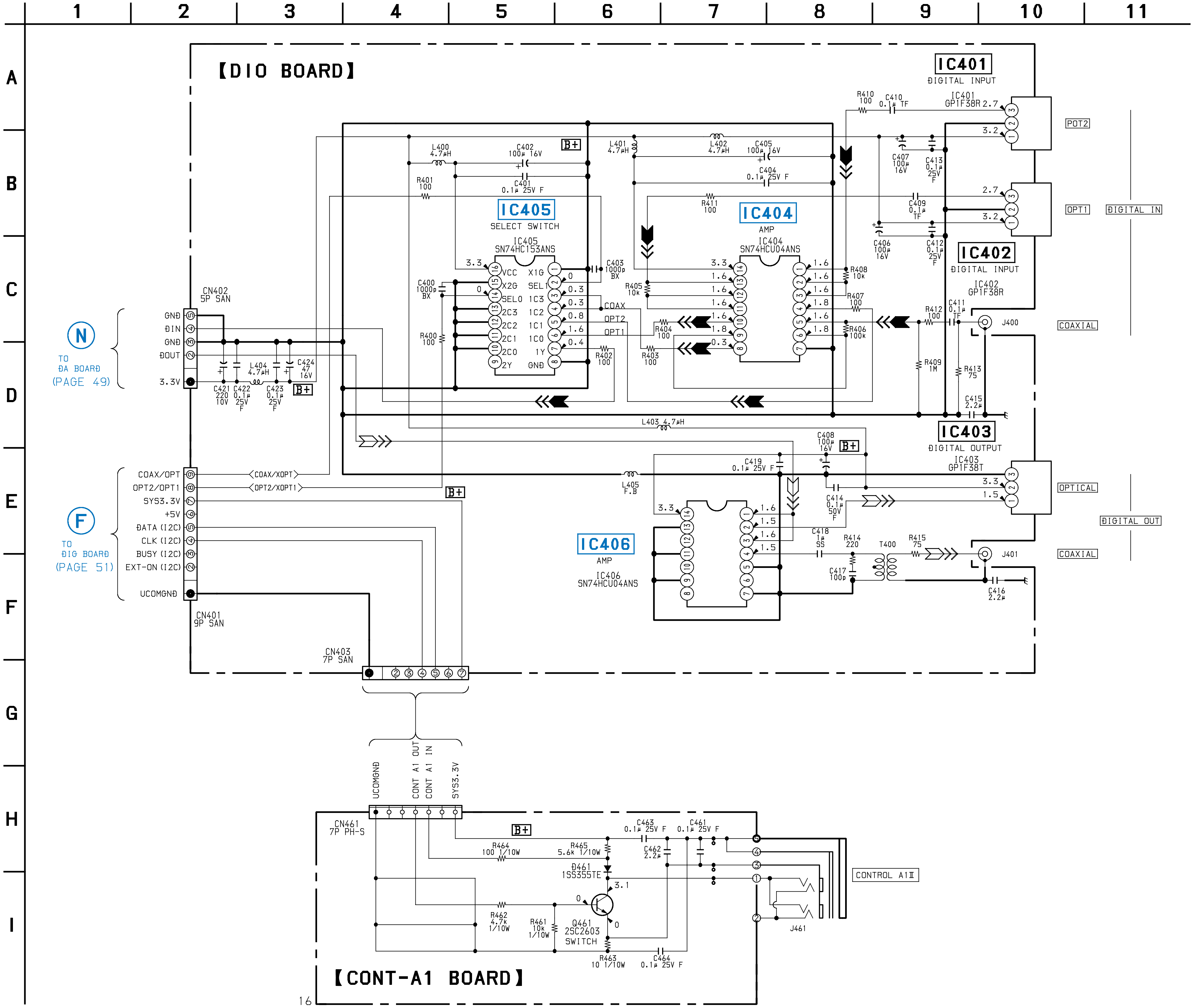
There are few cases that the part printed on this diagram isn't mounted in this model.

• Semiconductor Location

Ref. No.	Location
IC401	A-3
IC402	A-3
IC403	A-1
IC404	B-4
IC405	B-3
IC406	B-1


【DIO BOARD】(SIDE A)
DIGITAL OUT
IC403 OPTICAL
J401 COAXIAL
DIGITAL IN
IC401 OPT2
IC402 OPT1
J400 COAXIAL
【DIO BOARD】(SIDE B)
C414
C416
C420
R415
C408
C419
T400
IC406
L405
C418
R414 C417
L402
L400
L401
L403
C401
C400
R400
C402
C406
C412
C409
C410
C407
C413
R405
R411
R413
C411
R412
C415
R406
R409
IC405
IC404
C404
C405
R410
R401 C403 R403 R407 R404 R402
C424
R408
L404
C422
C423
C421
CN403
CN401
CN402
EP302
LP401
1-678-449
11
(11)
F (Page 50) TO DIG BOARD
N (Page 48) TO DA BOARD
【CONT-A1 BOARD】(SIDE A)
【CONT-A1 BOARD】(SIDE B)
C468 C464
C463 R464 R465
CN461
LP461
Q461
D461
R462
C466
C465
R463
R461
D462
C467
C462
C461
J461 CONTROL A1Ⅱ
EP461
1-678-458
A
B
C
D
E
16
1
2
3
4
5
6
7
8
9

6-11. SCHEMATIC DIAGRAM DIO SECTION • Refer to page 39 for Note on Schematic Diagrams. • Refer to page 63 for IC Block Diagrams.


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
【DIO BOARD】
IC401
DIGITAL INPUT
IC401 GP1F38R
IC402
DIGITAL INPUT
IC402 GP1F38R
IC403
DIGITAL OUTPUT
IC403 GP1F38T
IC404
AMP
IC404 SN74HCU04ANS
IC405
SELECT SWITCH
IC405 SN74HC153ANS
IC406
AMP
IC406 SN74HCU04ANS
POT2
OPT1
DIGITAL IN
COAXIAL
OPTICAL
DIGITAL OUT
J400
J401
T400
B+
CN402 5P SAN
CN401 9P SAN
CN403 7P SAN
N
TO DA BOARD (PAGE 49)
F
TO DIG BOARD (PAGE 51)
GND
DIN
GND
DOUT
3.3V
COAX/OPT
OPT2/OPT1
SYS3.3V
+5V
DATA (I2C)
CLK (I2C)
BUSY (I2C)
EXT-ON (I2C)
UCOMGND
COAX/XOPT
OPT2/XOPT1
COAX
OPT2
OPT1
VCC
X1G
X2G
SEL1
SEL0
1C3
2C3
1C2
2C2
1C1
2C1
1C0
2C0
1Y
2Y
GND
L400 4.7μH
L401 4.7μH
L402 4.7μH
L403 4.7μH
L404 4.7μH
L405 F.B
C400 1000p BX
C401 0.1μ 25V F
C402 100μ 16V
C403 1000p BX
C404 0.1μ 25V F
C405 100μ 16V
C406 100μ 16V
C407 100μ 16V
C408 100μ 16V
C409 0.1μ TF
C410 0.1μ TF
C411 0.1μ TF
C412 0.1μ 25V F
C413 0.1μ 25V F
C414 0.1μ 50V F
C415 2.2μ
C416 2.2μ
C417 100p
C418 1μ SS
C419 0.1μ 25V F
C421 220 10V
C422 0.1μ 25V F
C423 0.1μ 25V F
C424 47 16V
R400 100
R401 100
R402 100
R403 100
R404 100
R405 10k
R406 100k
R407 100
R408 10k
R409 1M
R410 100
R411 100
R412 100
R413 75
R414 220
R415 75
【CONT-A1 BOARD】
CN461 7P PH-S
UCOMGND
CONT A1 OUT
CONT A1 IN
SYS3.3V
R461 10k 1/10W
R462 4.7k 1/10W
R463 10 1/10W
R464 100 1/10W
R465 5.6k 1/10W
C461 0.1μ 25V F
C462 2.2μ
C463 0.1μ 25V F
C464 0.1μ 25V F
D461 1SS355TE
Q461 2SC2603 SWITCH
J461
CONTROL A1II
16

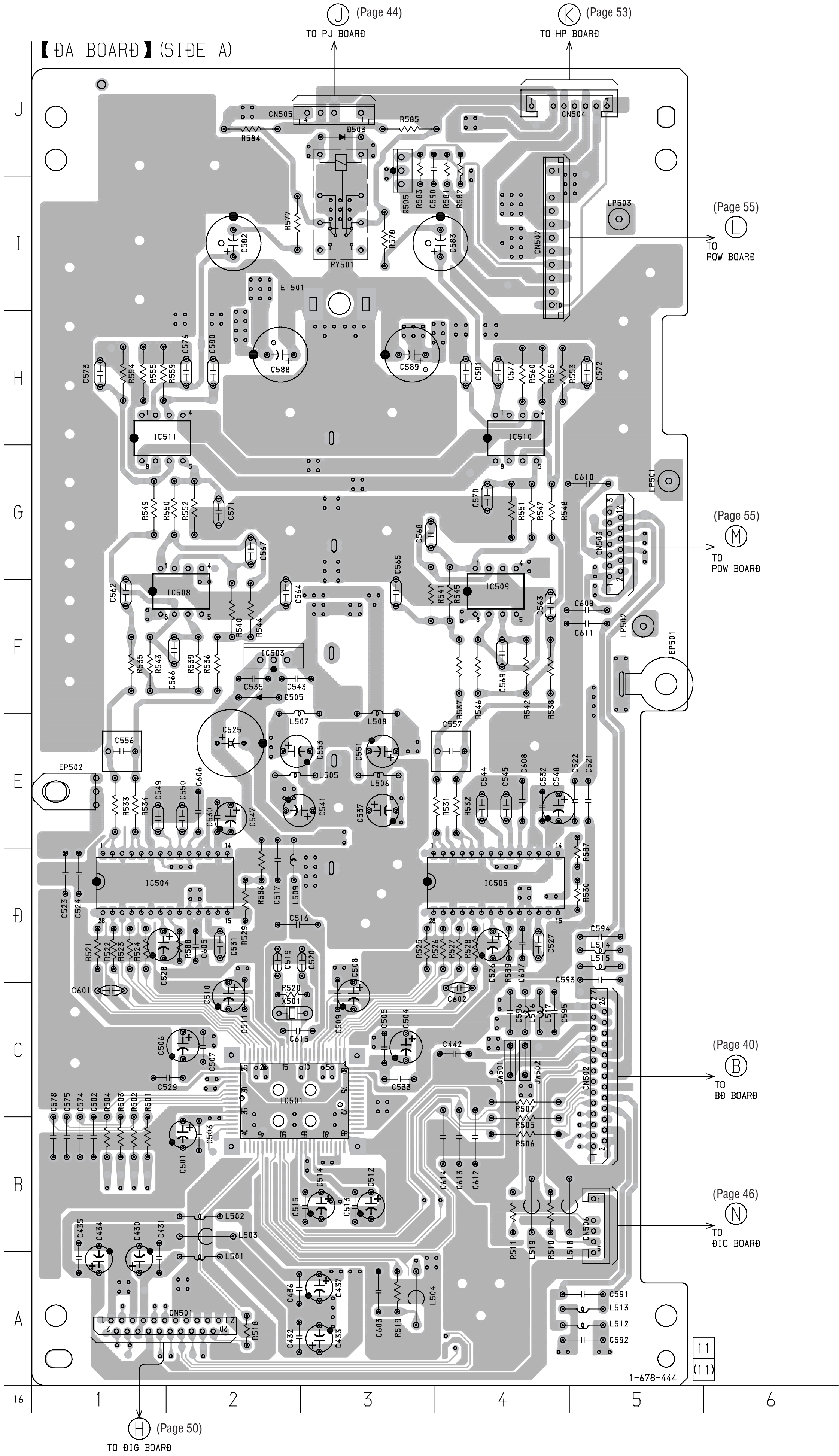
6-12. PRINTED WIRING BOARD DA SECTION

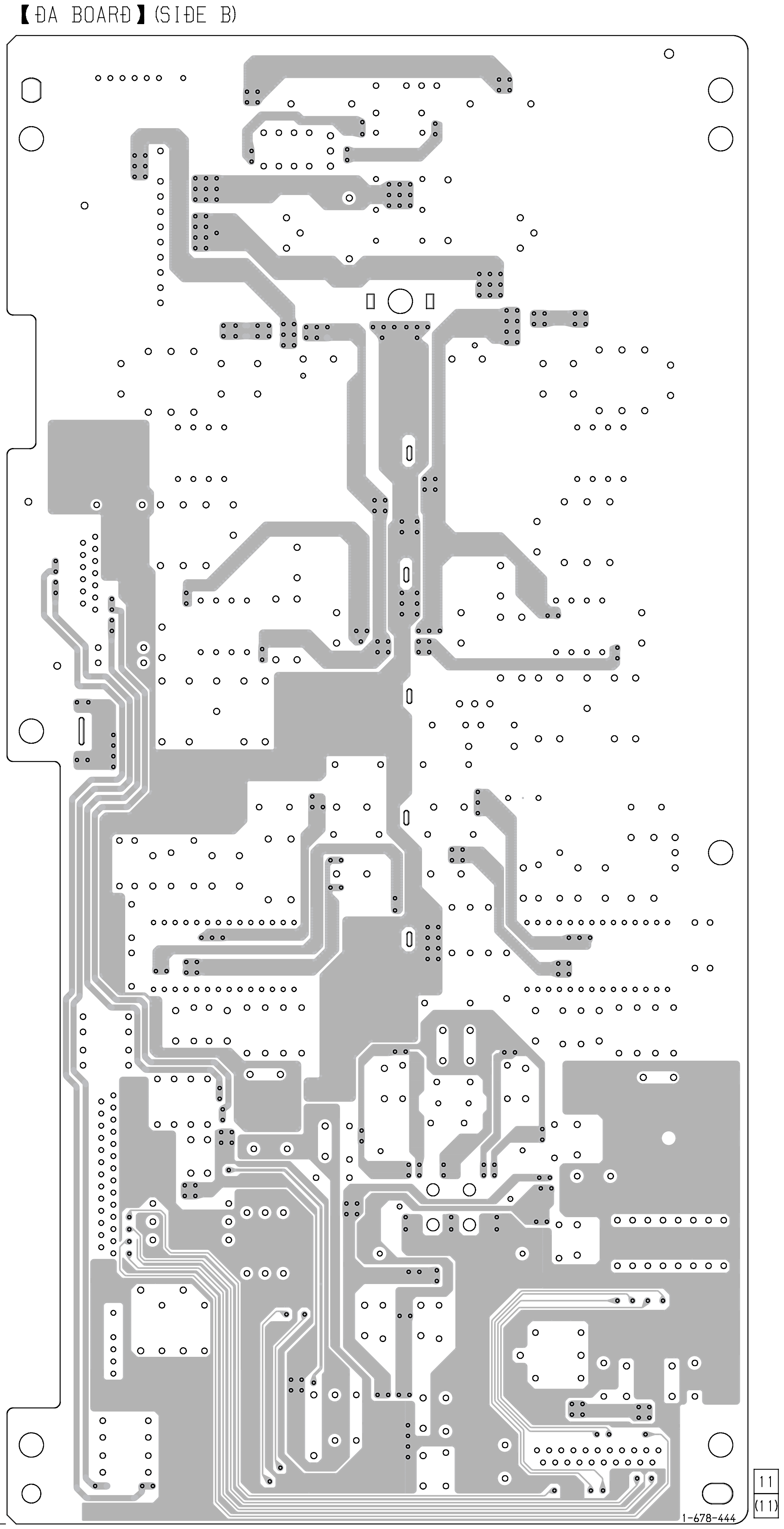
- Refer to page 39 for Note on Printed Wiring Boards.
- Refer to page 39 for Circuit Board Location.

There are few cases that the part printed on this diagram isn't mounted in this model.

- **Semiconductor Location**

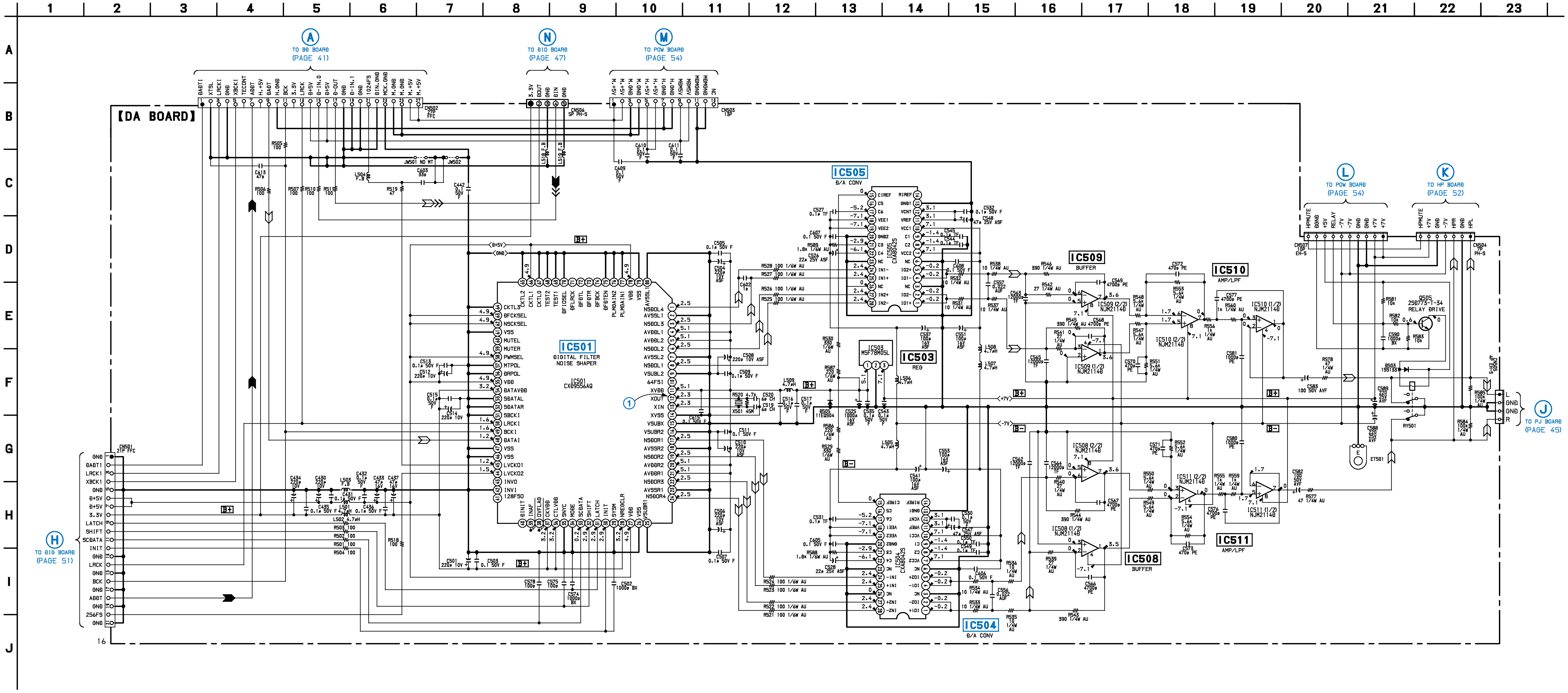
Ref. No.	Location
D503	J-3
D505	F-2
IC501	C-2
IC503	F-2
IC504	D-1
IC505	D-4
IC508	F-2
IC509	F-4
IC510	H-4
IC511	H-1
Q505	I-3


【DA BOARD】(SIDE A)
J (Page 44)
TO PJ BOARD
K (Page 53)
TO HP BOARD
(Page 55) L
TO POW BOARD
(Page 55) M
TO POW BOARD
(Page 40) B
TO BD BOARD
(Page 46) N
TO DIG BOARD
H (Page 50)
TO DIG BOARD
CN505
CN504
CN507
CN506
CN503
CN502
CN501
D503
D505
RY501
ET501
LP503
LP501
LP502
EP501
EP502
Q505
IC511
IC510
IC508
IC509
IC503
IC504
IC505
IC501
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
16
1-678-444
11
(11)


【DA BOARD】(SIDE B)
1-678-444
11
(11)

6-13. SCHEMATIC DIAGRAM DA SECTION

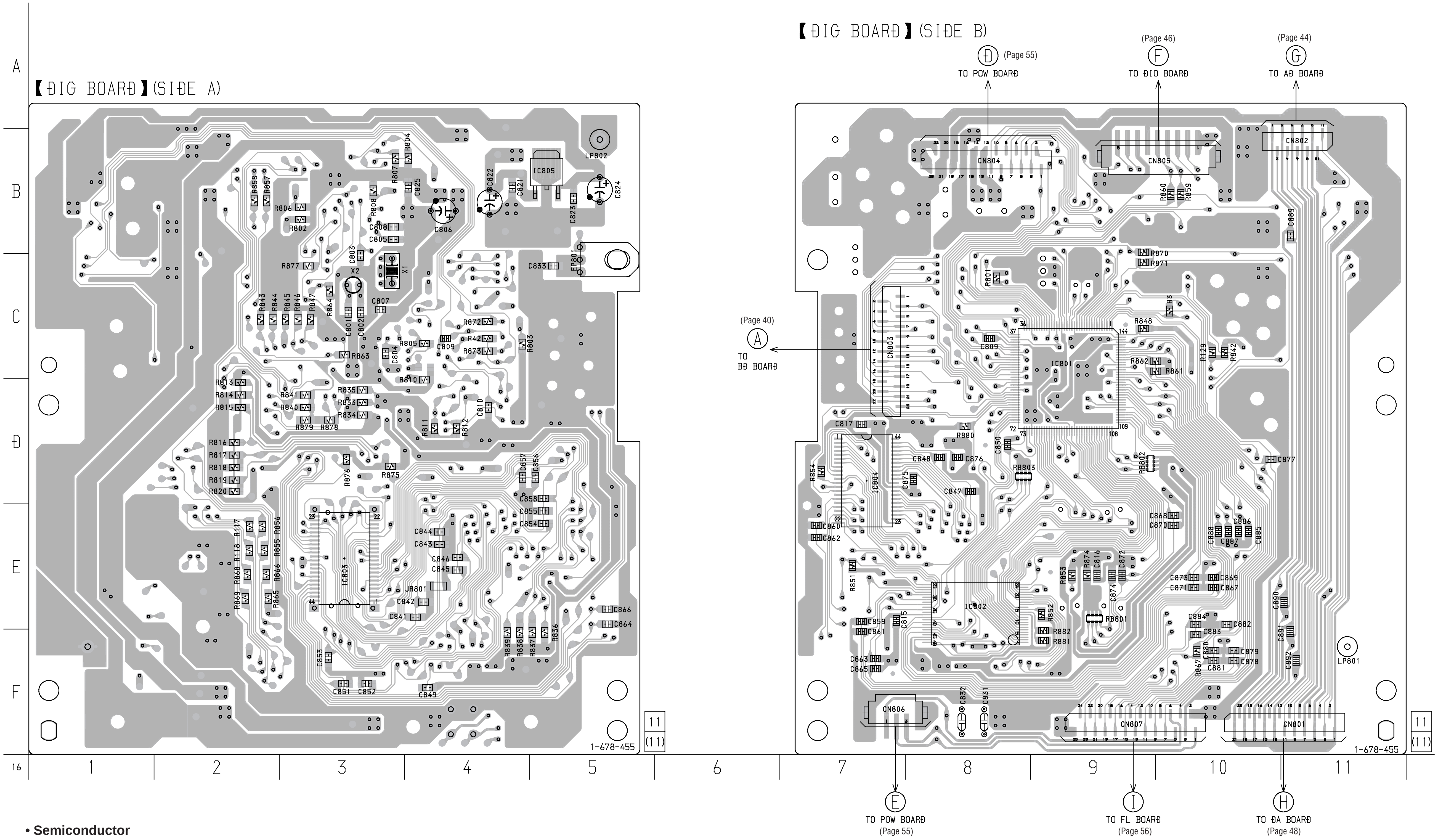
• Refer to page 39 for Note on Schematic Diagrams. • Refer to page 60 for Waveform.


【DA BOARD】
A TO BD BOARD (PAGE 41)
N TO DIO BOARD (PAGE 47)
M TO POW BOARD (PAGE 54)
L TO POW BOARD (PAGE 54)
K TO HP BOARD (PAGE 52)
J TO PJ BOARD (PAGE 45)
H TO DIO BOARD (PAGE 51)
IC501 DIGITAL FILTER NOISE SHAPER IC501 CXD9556AQ
IC505 D/A CONV
IC504 D/A CONV
IC503 REG
IC509 BUFFER
IC510 AMP/LPF
IC508 BUFFER
IC511 AMP/LPF
Q505 2SB775-T-34 RELAY DRIVE
RY501
ET501
CN501 21P FFC
CN502 22P FFC
CN503 13P
CN504 5P PH-S
CN505 7P PH-S
CN506 5P PH-S
CN507 10P EH-S

6-14. PRINTED WIRING BOARD DIGITAL SECTION

• Refer to page 39 for Note on Printed Wiring Boards. •Refer to page 39 for Circuit Board Location.

There are few cases that the part printed on this diagram isn't mounted in this model.

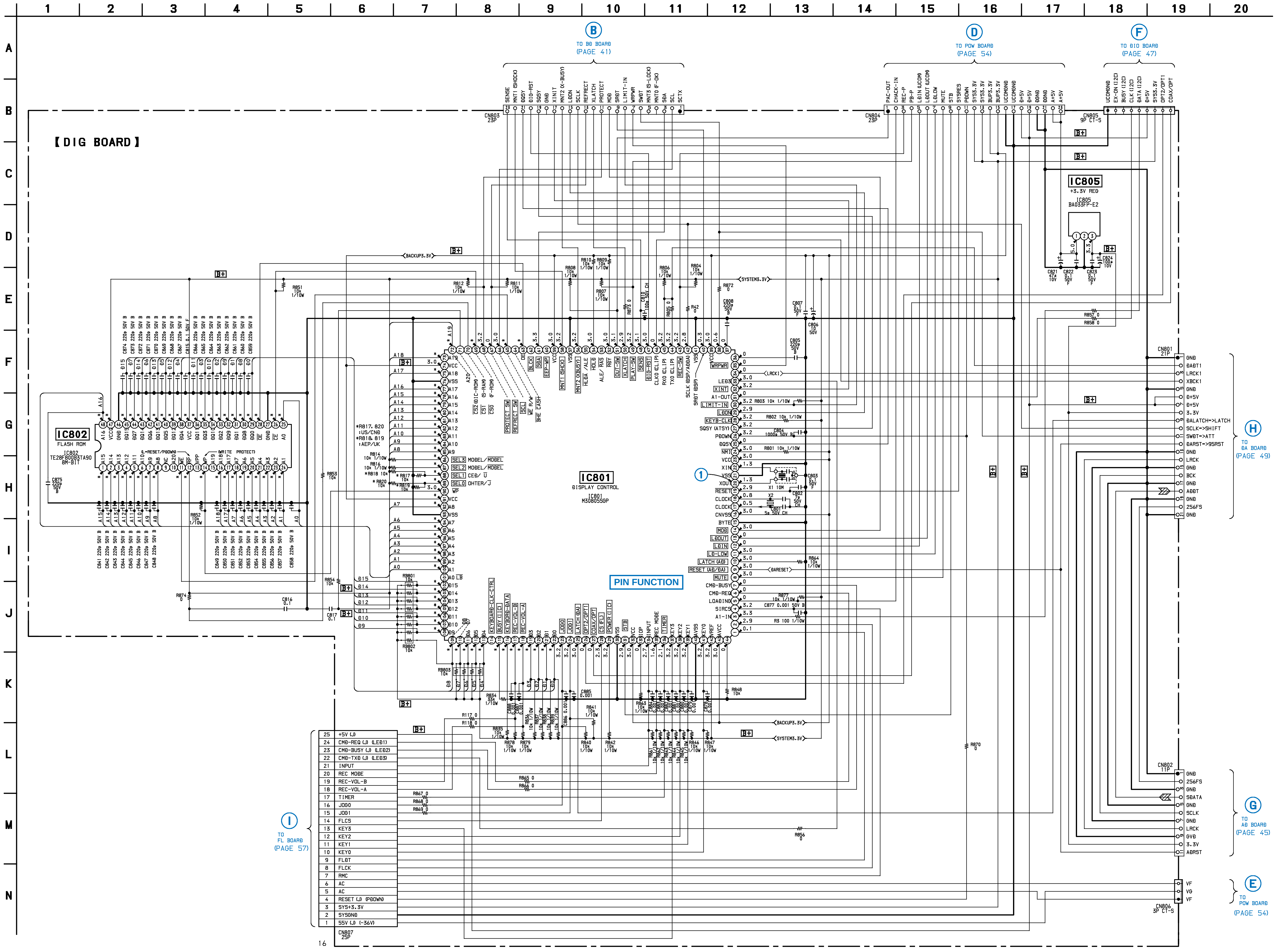

【DIG BOARD】(SIDE A)
【DIG BOARD】(SIDE B)
(Page 55) D TO POW BOARD
(Page 46) F TO DIO BOARD
(Page 44) G TO AD BOARD
(Page 40) A TO BD BOARD
E TO POW BOARD (Page 55)
I TO FL BOARD (Page 56)
H TO DA BOARD (Page 48)
IC801
IC802
IC803
IC804
IC805
CN801
CN802
CN803
CN804
CN805
CN806
CN807
LP801
LP802
X1
X2
EP801
1-678-455
11
(11)
A
B
C
D
E
F
1
2
3
4
5
6
7
8
9
10
11
16

• **Semiconductor Location**

Ref. No.	Location
IC801	C-9
IC802	E-8
IC805	B-5

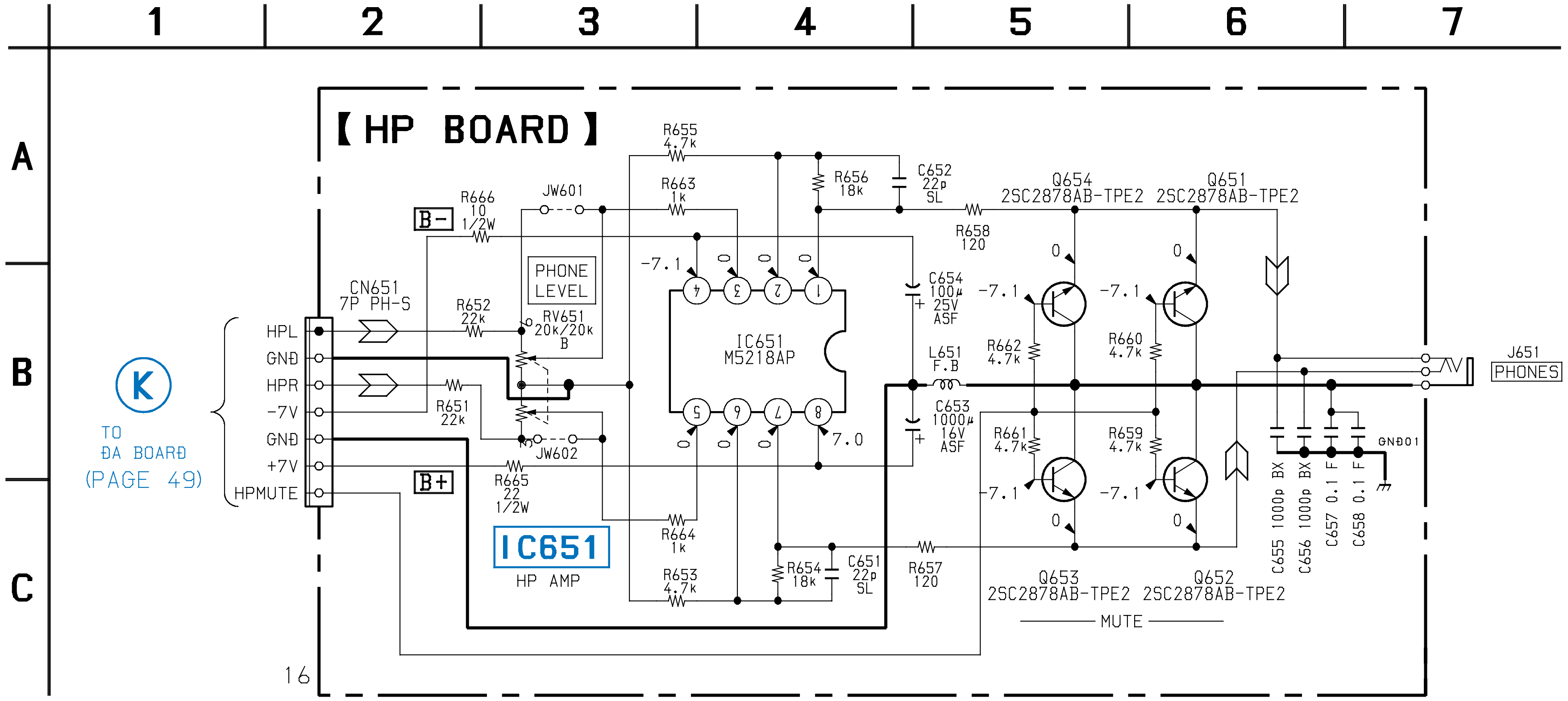
6-15. SCHEMATIC DIAGRAM DIGITAL SECTION

• Refer to page 39 for Note on Schematic Diagrams. • Refer to page 60 for Waveform. • Refer to page 70 for IC Pin Function.


【DIG BOARD】
B TO BD BOARD (PAGE 41)
D TO POW BOARD (PAGE 54)
F TO DIO BOARD (PAGE 47)
H TO DA BOARD (PAGE 49)
G TO AD BOARD (PAGE 45)
E TO POW BOARD (PAGE 54)
I TO FL BOARD (PAGE 57)
CN803 23P
CN804 23P
CN805 9P CT-S
CN801 21P
CN802 11P
CN806 3P CT-S
CN807 25P
IC801 DISPLAY CONTROL IC801 M30805SGP
IC802 FLASH ROM IC802 TE28F800B3TA90 8M-BIT
IC805 +3.3V REG IC805 BA033FP-E2
PIN FUNCTION
BACKUP3.3V
SYSTEM3.3V
B+
X1 10M
X2
GND
BABT1
LRCK1
XBCK1
D+5V
3.3V
BALATCH->LATCH
SCLK->SHIFT
SWBT->ATT
BARST->95RST
LRCK
BCK
ABBT
256FS
SBATA
SCLK
SVD
ABRST
VF
VG
25 +5V (J)
24 CMD-REQ (J) (LED1)
23 CMD-BUSY (J) (LED2)
22 CMD-TXD (J) (LED3)
21 INPUT
20 REC MODE
19 REC-VOL-B
18 REC-VOL-A
17 TIMER
16 JOG0
15 JOG1
14 FLCS
13 KEY3
12 KEY2
11 KEY1
10 KEY0
9 FLDT
8 FLCK
7 RMC
6 AC
5 AC
4 RESET (J) (PDOWN)
3 SYS+3.3V
2 SYSGND
1 55V (J) (-36V)

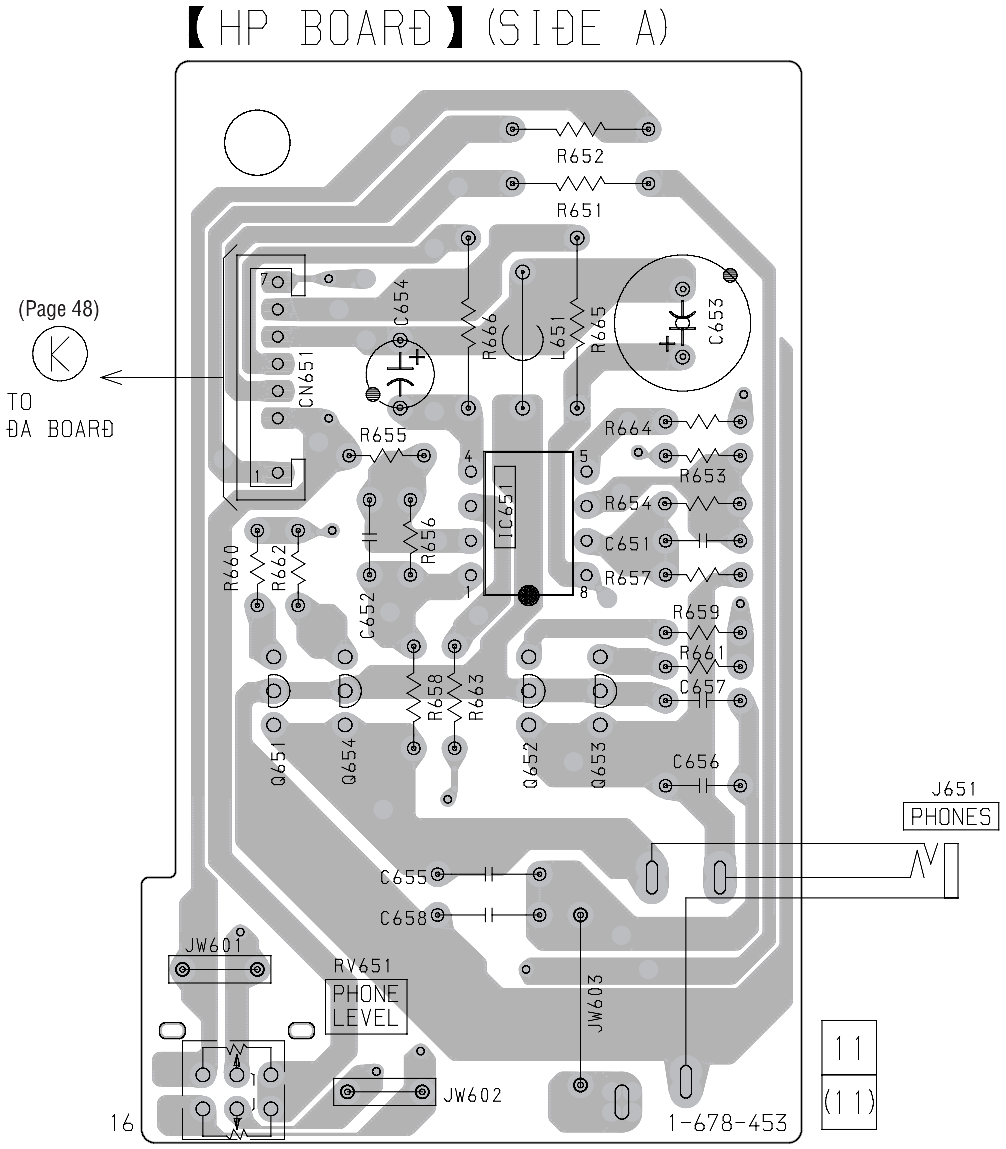
6-16. SCHEMATIC DIAGRAM HP SECTION

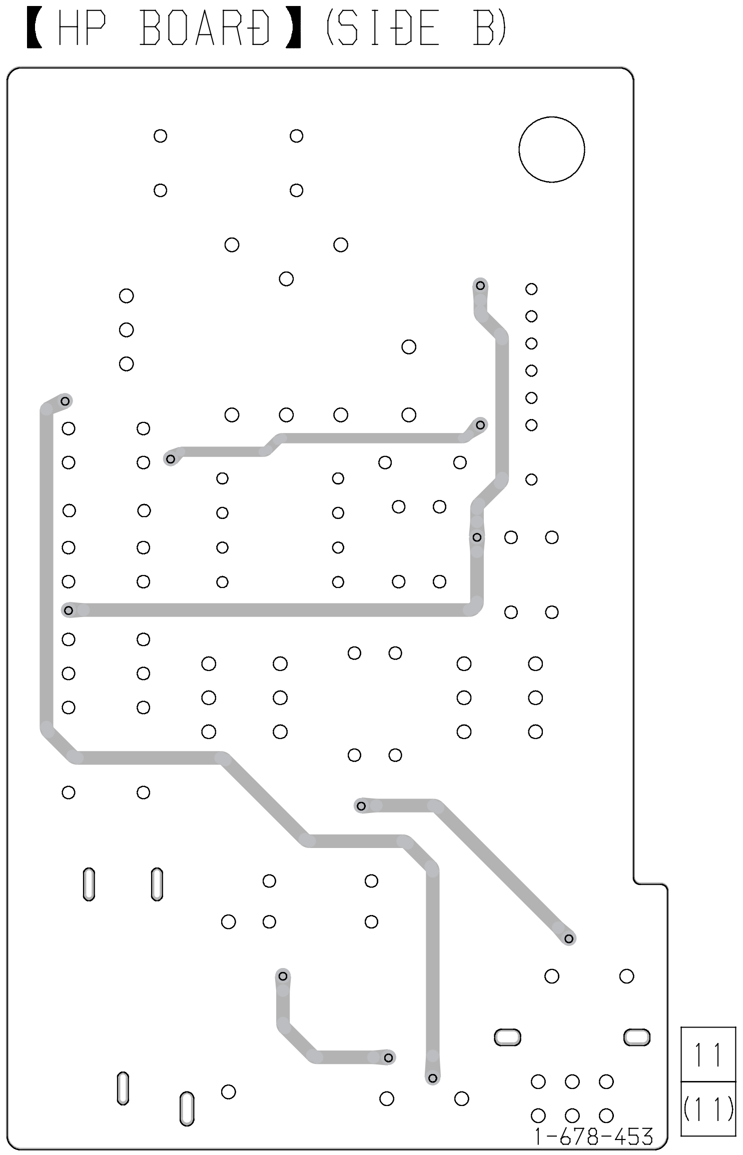
• Refer to page 39 for Note on Schematic Diagrams. • Refer to page 63 for IC Block Diagrams.


1
2
3
4
5
6
7
A
B
C
【HP BOARD】
K
TO
DA BOARD
(PAGE 49)
CN651
7P PH-S
HPL
GND
HPR
-7V
GND
+7V
HPMUTE
B−
B+
R666
10
1/2W
JW601
JW602
R652
22k
R651
22k
R665
22
1/2W
PHONE
LEVEL
RV651
20k/20k
B
IC651
HP AMP
IC651
M5218AP
R655
4.7k
R663
1k
R656
18k
C652
22p
SL
R664
1k
R653
4.7k
R654
18k
C651
22p
SL
-7.1
7.0
0
C654
100μ
25V
ASF
L651
F.B
C653
1000μ
16V
ASF
R658
120
R657
120
Q654
2SC2878AB-TPE2
Q651
2SC2878AB-TPE2
Q653
2SC2878AB-TPE2
Q652
2SC2878AB-TPE2
R662
4.7k
R660
4.7k
R661
4.7k
R659
4.7k
MUTE
C655 1000p BX
C656 1000p BX
C657 0.1 F
C658 0.1 F
GND01
J651
PHONES
16

6-17. PRINTED WIRING BOARD HP SECTION • Refer to page 39 for Note on Printed Wiring Boards. • Refer to page 39 for Circuit Board Location.

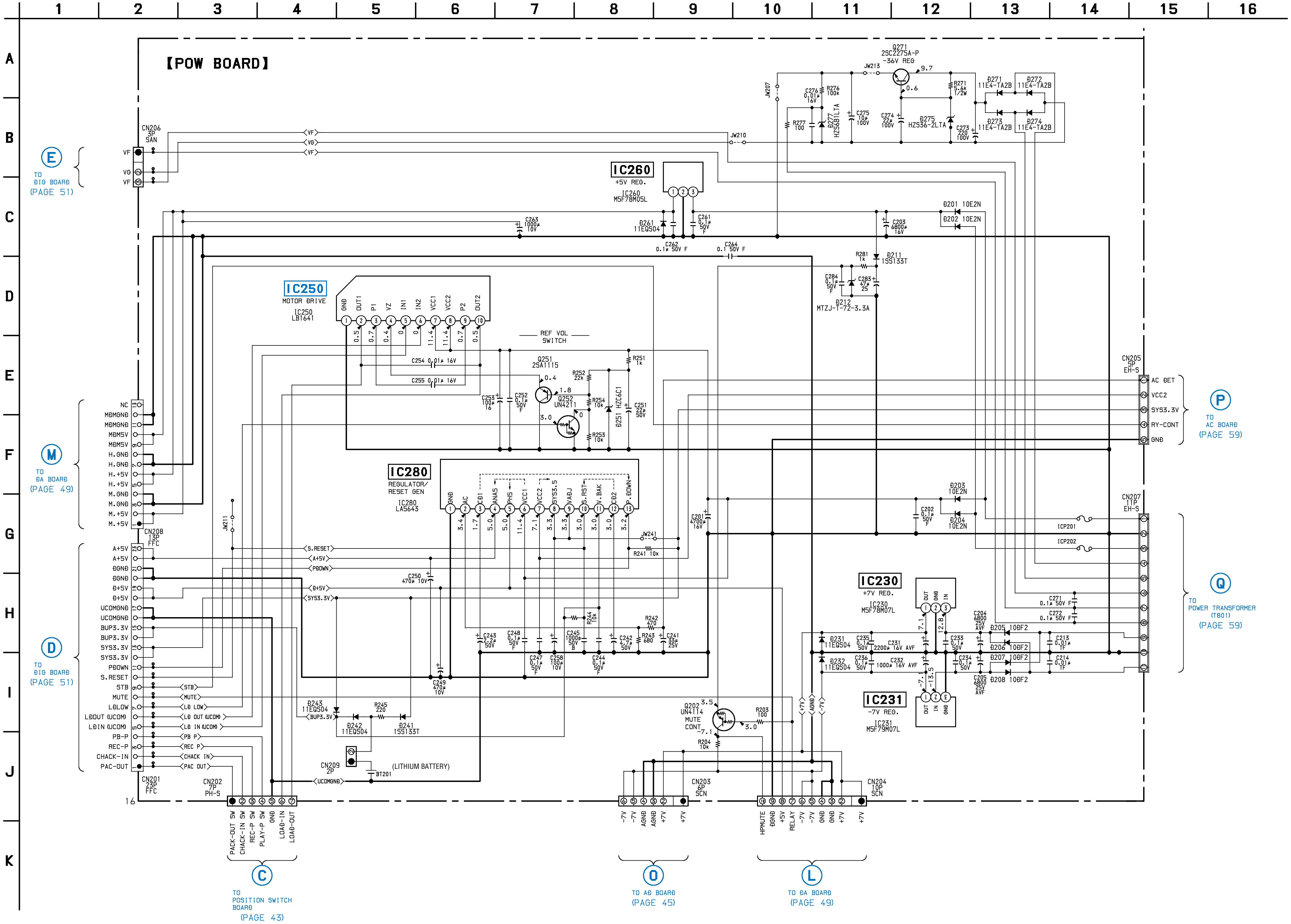
There are few cases that the part printed on this diagram isn't mounted in this model.


【HP BOARD】(SIDE A)
(Page 48)
K
TO
DA BOARD
R652
R651
C654
R666
L651
R665
C653
CN651
7
1
R655
R664
R653
R654
C651
R657
R659
R661
C657
C656
IC651
4
5
1
8
R660
R662
C652
R656
R658
R663
Q651
Q654
Q652
Q653
J651
PHONES
C655
C658
JW601
RV651
PHONE
LEVEL
JW603
JW602
16
1-678-453
11
(11)


【HP BOARD】(SIDE B)
1-678-453
11
(11)

6-18. SCHEMATIC DIAGRAM POWER SECTION

• Refer to page 39 for Note on Schematic Diagrams. • Refer to page 65 for IC Block Diagram.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J K
【POW BOARD】
IC260 +5V REG. IC260 M5F78M05L
IC250 MOTOR DRIVE IC250 LB1641
IC280 REGULATOR/ RESET GEN IC280 LA5643
IC230 +7V REG. IC230 M5F78M07L
IC231 -7V REG. IC231 M5F79M07L
Q271 2SC2275A-P -36V REG
Q251 2SA1115
Q252 UN4211
Q202 UN4114 MUTE CONT
REF VOL SWITCH
CN206 3P SAN
CN205 5P EH-S
CN207 11P EH-S
CN208 13P FFC
CN201 23P FFC
CN202 7P PH-S
CN209 2P
CN203 6P SCN
CN204 10P SCN
(LITHIUM BATTERY)
BT201
AC BET
VCC2
SYS3.3V
RY-CONT
GND
ICP201
ICP202
E TO DIG BOARD (PAGE 51)
M TO BA BOARD (PAGE 49)
D TO DIG BOARD (PAGE 51)
P TO AC BOARD (PAGE 59)
Q TO POWER TRANSFORMER (T801) (PAGE 59)
C TO POSITION SWITCH BOARD (PAGE 43)
O TO AD BOARD (PAGE 45)
L TO BA BOARD (PAGE 49)
PACK-OUT SW
CHACK-IN SW
REC-P SW
PLAY-P SW
GND
LOAD-IN
LOAD-OUT
HPMUTE
DGND
+5V
RELAY
-7V
AGND
+7V
S.RESET
A+5V
PDOWN
D+5V
SYS3.3V
BUP3.3V
UCOMGND
STB
MUTE
LD LOW
LD OUT (UCOM)
LD IN (UCOM)
PB P
REC P
CHACK IN
PAC OUT

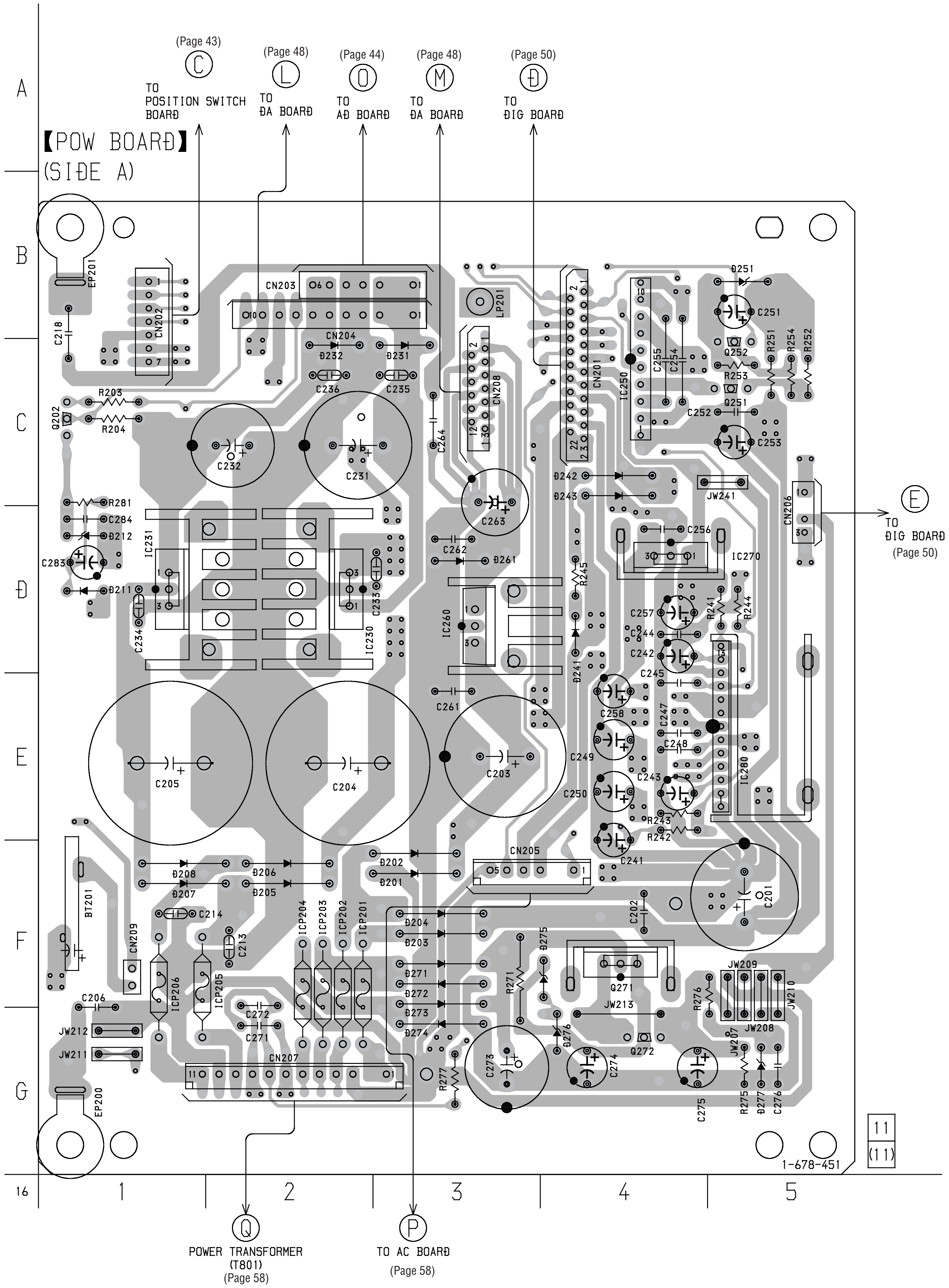
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

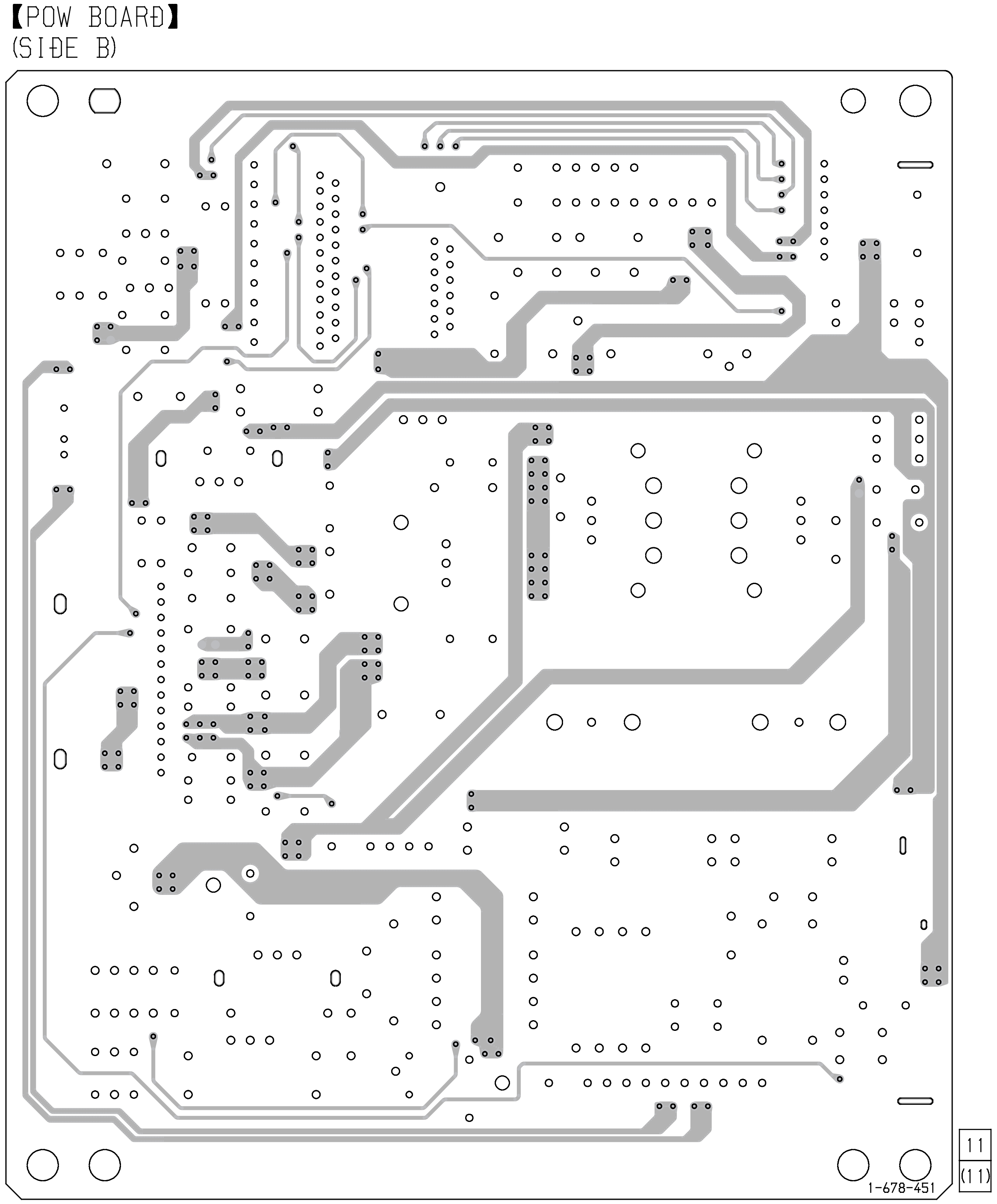
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

6-19. PRINTED WIRING BOARD POWER SECTION

• Refer to page 39 for Note on Printed Wiring Boards.

There are few cases that the part printed on this diagram isn't mounted in this model.


(Page 43) C TO POSITION SWITCH BOARD
(Page 48) L TO DA BOARD
(Page 44) O TO AD BOARD
(Page 48) M TO DA BOARD
(Page 50) D TO DIG BOARD
【POW BOARD】
(SIDE A)
E TO DIG BOARD (Page 50)
A
B
C
D
E
F
G
1
2
3
4
5
16
1-678-451
11
(11)
Q POWER TRANSFORMER (T801) (Page 58)
P TO AC BOARD (Page 58)
CN202
CN203
CN204
CN205
CN206
CN207
CN208
CN209
CN201
IC230
IC231
IC250
IC260
IC270
IC280
C205
C204
C203
C201
C231
C232
BT201
EP200
EP201
LP201
ICP201
ICP202
ICP203
ICP204
ICP205
ICP206
JW208
JW209
JW210
JW211
JW212
JW213
JW241
Q202
Q251
Q252
Q271
Q272


【POW BOARD】
(SIDE B)
11
(11)
1-678-451

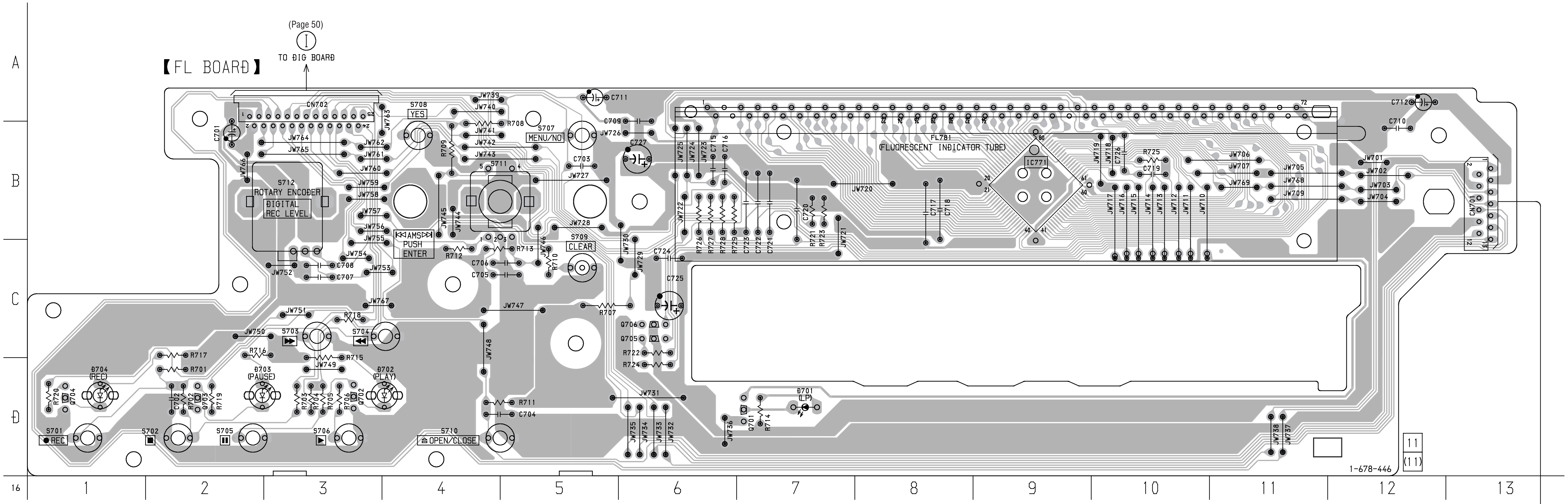
• Semiconductor Location

Ref. No.	Location
D201	F-3
D202	F-3
D203	F-3
D204	F-3
D205	F-2
D206	F-2
D207	F-1
D208	F-1
D211	D-1
D212	D-1
D231	C-3
D232	C-2
D241	D-4
D242	C-4
D243	C-4
D251	B-5
D261	D-3
D271	F-3
D272	F-3
D273	F-3
D274	G-3
D275	F-4
D277	G-5
IC230	D-2
IC231	D-1
IC250	C-4
IC260	D-3
IC280	E-5
Q202	C-1
Q251	C-5
Q252	B-5
Q271	F-4

6-20. PRINTED WIRING BOARD PANEL SECTION

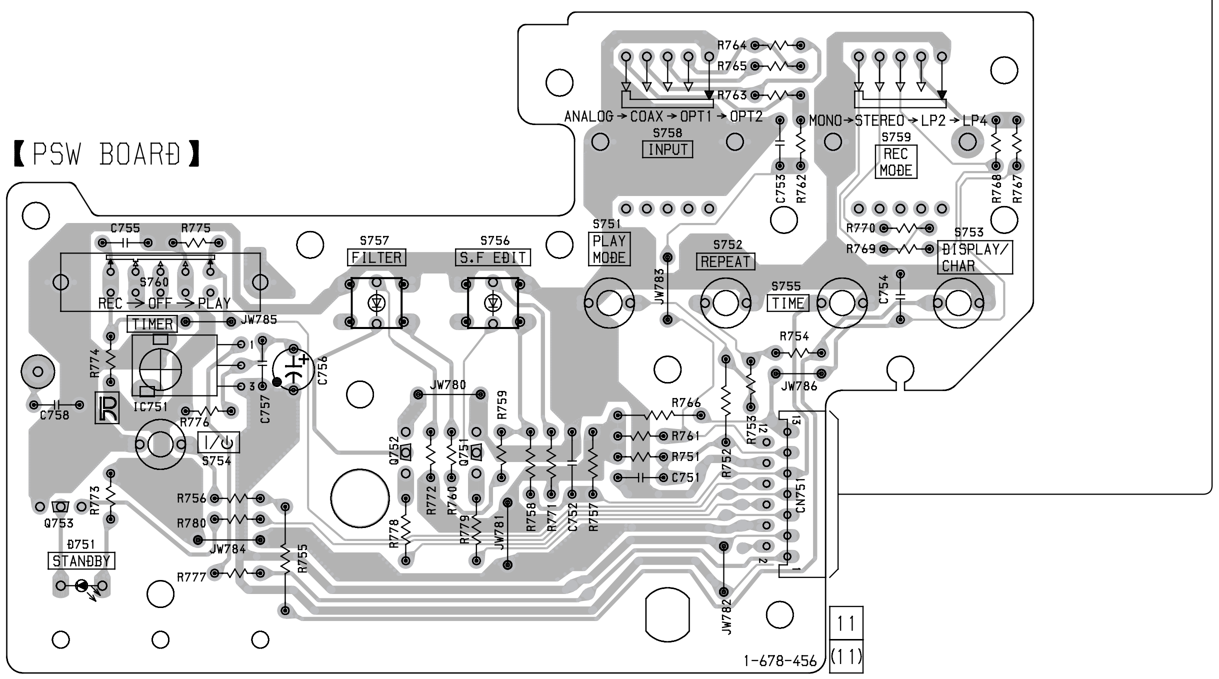
• Refer to page 39 for Note on Printed Wiring Boards. • Refer to page 39 for Circuit Board Location.

There are few cases that the part printed on this diagram isn't mounted in this model.


(Page 50)
I
TO DIG BOARD
【FL BOARD】
A
B
C
D
CN702
S708 YES
S707 MENU/NO
S711
S712 ROTARY ENCODER DIGITAL REC LEVEL
⏮AMS⏭ PUSH ENTER
S709 CLEAR
FL781 (FLUORESCENT INDICATOR TUBE)
IC771
C711
C712
C710
C727
C725
C724
CN701
S703 ⏩
S704 ⏪
D704 (REC)
D703 (PAUSE)
D702 (PLAY)
D701 (LP)
S701 ● REC
S702 ■
S705 ⏸
S706 ▶
S710 ⏏ OPEN/CLOSE
Q701
Q702
Q703
Q704
Q705
Q706
1-678-446
11
(11)
16
1
2
3
4
5
6
7
8
9
10
11
12
13

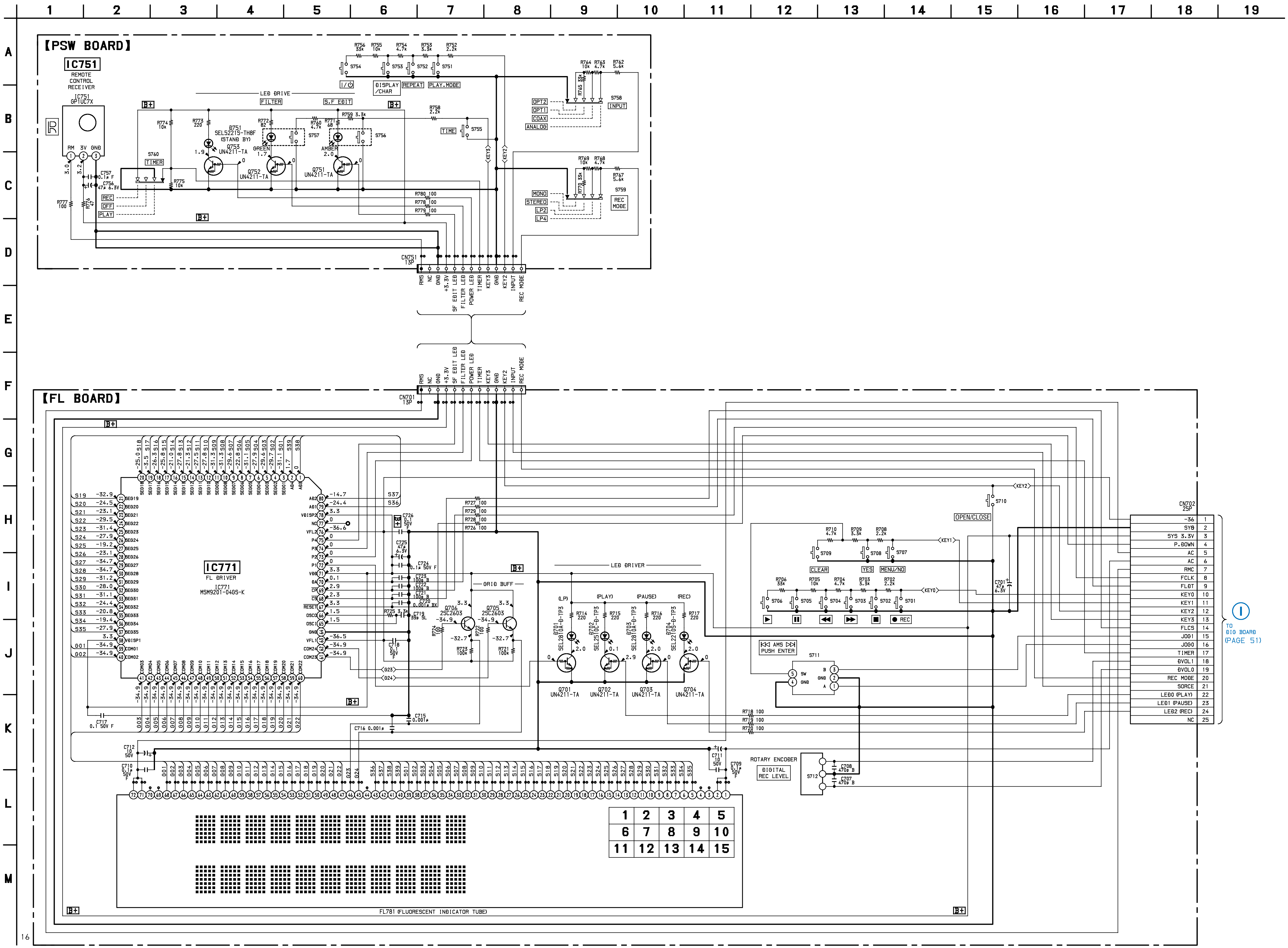
• **Semiconductor Location**

Ref. No.	Location
D701	D-7
D702	D-3
D703	D-2
D704	D-1
IC771	B-9
Q701	D-7
Q702	D-3
Q703	D-2
Q704	D-1
Q705	C-6
Q706	C-6


【PSW BOARD】
ANALOG → COAX → OPT1 → OPT2
S758 INPUT
MONO → STEREO → LP2 → LP4
S759 REC MODE
S751 PLAY MODE
S752 REPEAT
S755 TIME
S753 DISPLAY/CHAR
S757 FILTER
S756 S.F EDIT
S760 REC → OFF → PLAY
TIMER
IC751
S754 I/⏻
D751 STANDBY
Q751
Q752
Q753
CN751
1-678-456
11
(11)

6-21. SCHEMATIC DIAGRAM PANEL SECTION

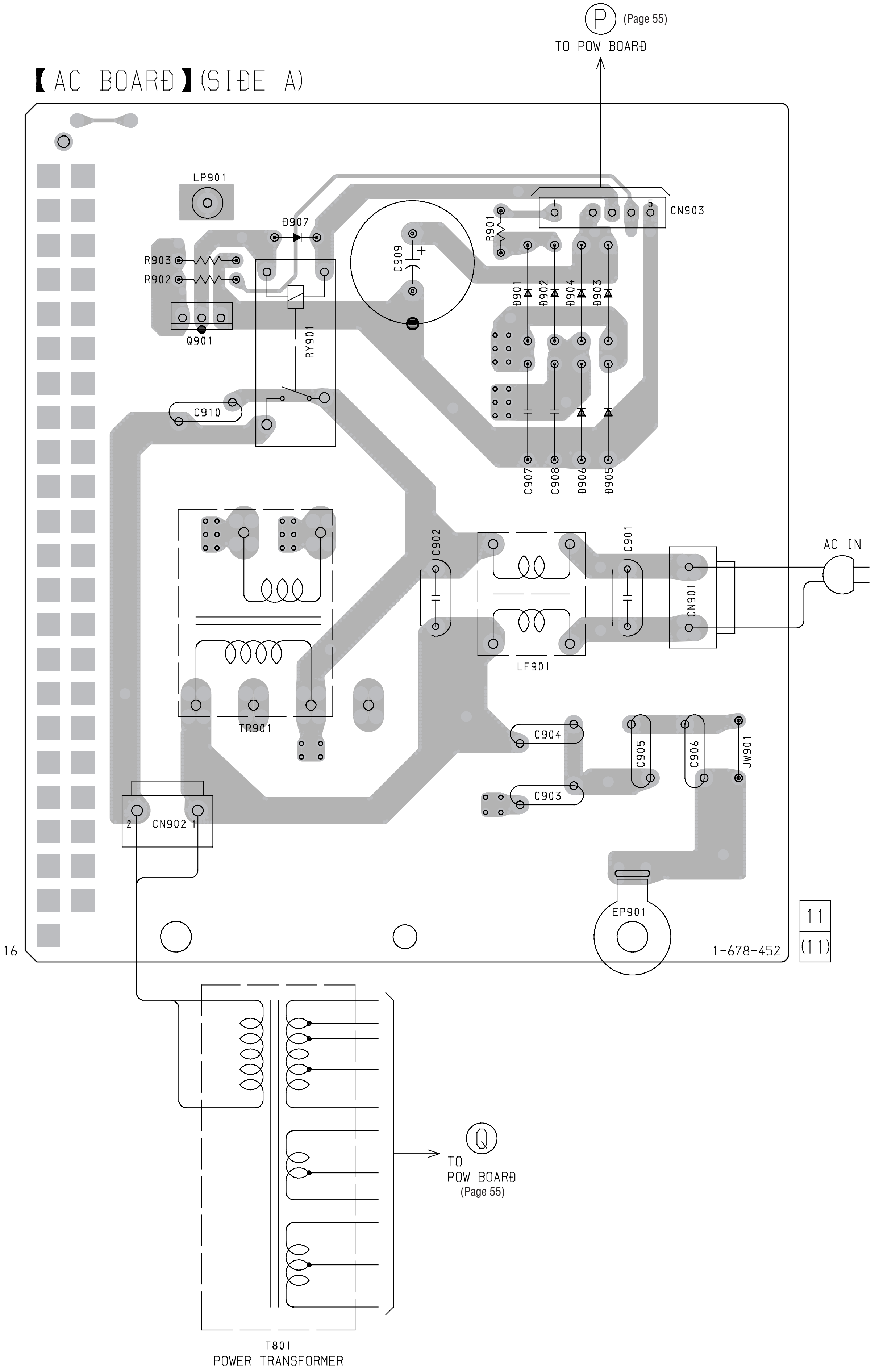
• Refer to page 39 for Note on Schematic Diagrams.

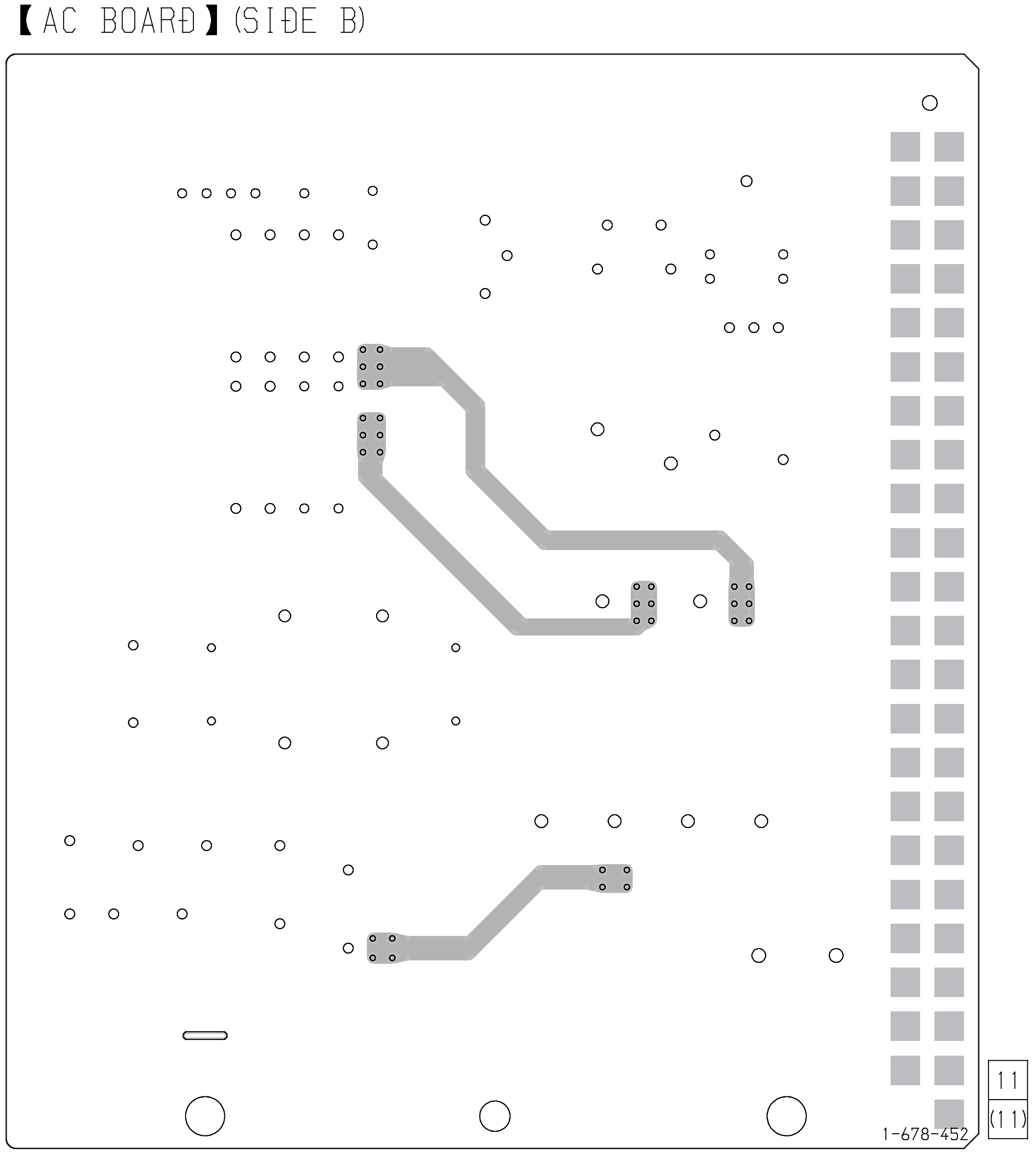

【PSW BOARD】
IC751
REMOTE CONTROL RECEIVER
IC751 GP1UC7X
RM 3V GND
LED DRIVE
FILTER
S.F EDIT
D751 SEL5221S-TH8F (STAND BY)
Q753 UN4211-TA
Q752 UN4211-TA
Q751 UN4211-TA
GREEN
AMBER
S760 TIMER
REC
OFF
PLAY
I/⏻
DISPLAY /CHAR
REPEAT
PLAY MODE
S754 S753 S752 S751
S757 S756 S755
TIME
OPT2
OPT1
COAX
ANALOG
S758 INPUT
MONO
STEREO
LP2
LP4
S759 REC MODE
CN751 13P
RMS NC GND +3.3V SF EDIT LED FILTER LED POWER LED TIMER KEY3 GND KEY2 INPUT REC MODE
【FL BOARD】
CN701 13P
IC771
FL DRIVER
IC771 MSM9201-04GS-K
GRID BUFF
Q706 2SC2603
Q705 2SC2603
LED DRIVER
(LP) (PLAY) (PAUSE) (REC)
D701 SEL2810A-D-TP3
D702 SEL2510C-D-TP3
D703 SEL2810A-D-TP3
D704 SEL2210S-D-TP3
Q701 UN4211-TA
Q702 UN4211-TA
Q703 UN4211-TA
Q704 UN4211-TA
S710 OPEN/CLOSE
S709 S708 S707
CLEAR YES MENU/NO
S706 S705 S704 S703 S702 S701
▶ ❚❚ ◀◀ ▶▶ ■ ● REC
⏮ AMS ⏭ PUSH ENTER
S711
ROTARY ENCODER
DIGITAL REC LEVEL
S712
CN702 25P
-36 SYB SYS 3.3V P.DOWN AC AC RMC FCLK FLDT KEY0 KEY1 KEY2 KEY3 FLCS JOG1 JOG0 TIMER DVOL1 DVOL0 REC MODE SORCE LED0 (PLAY) LED1 (PAUSE) LED2 (REC) NC
Ⓘ TO BIG BOARD (PAGE 51)
FL781 (FLUORESCENT INDICATOR TUBE)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

6-22. PRINTED WIRING BOARD AC SECTION

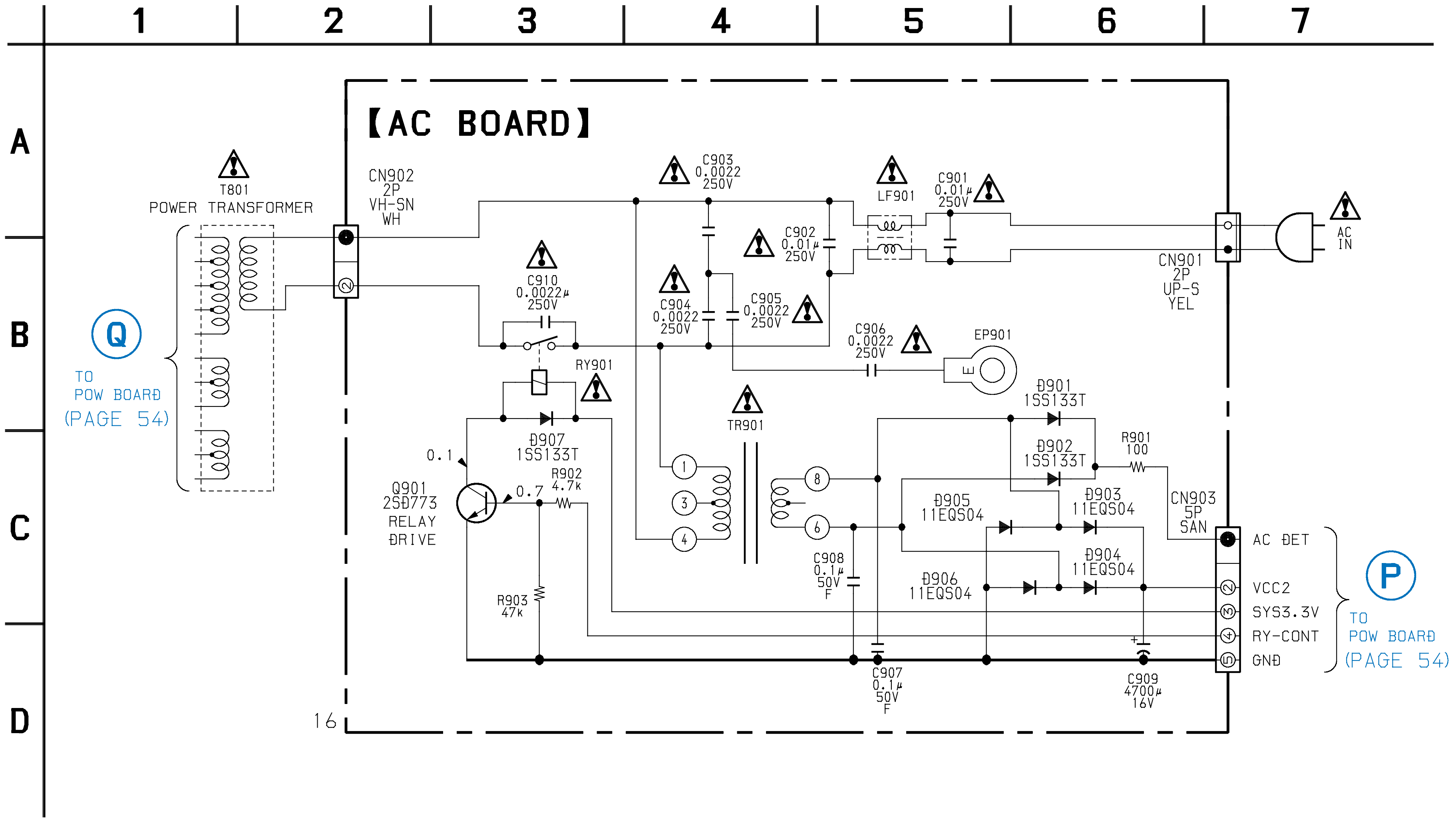
• Refer to page 39 for Note on Printed Wiring Boards. • Refer to page 39 for Circuit Board Location.

There are few cases that the part printed on this diagram isn't mounted in this model.


P
(Page 55)
TO POW BOARD
【AC BOARD】(SIDE A)
LP901
D907
R903
R902
Q901
RY901
C909
R901
1
5
CN903
D901
D902
D904
D903
C910
C907
C908
D906
D905
C902
C901
AC IN
CN901
LF901
TR901
C904
C905
C906
JW901
C903
2
CN902
1
EP901
16
1-678-452
11
(11)
Q
TO
POW BOARD
(Page 55)
T801
POWER TRANSFORMER


【AC BOARD】(SIDE B)
1-678-452
11
(11)

6-23. SCHEMATIC DIAGRAM AC SECTION • Refer to page 39 for Note on Schematic Diagrams.

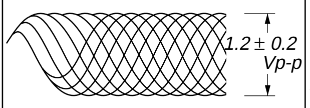

1
2
3
4
5
6
7
A
B
C
D
【AC BOARD】
T801
POWER TRANSFORMER
Q
TO
POW BOARD
(PAGE 54)
CN902
2P
VH-SN
WH
C910
0.0022μ
250V
RY901
0.1
Q901
2SD773
RELAY
DRIVE
0.7
D907
1SS133T
R902
4.7k
R903
47k
C903
0.0022
250V
C904
0.0022
250V
C902
0.01μ
250V
C905
0.0022
250V
TR901
LF901
C901
0.01μ
250V
C906
0.0022
250V
EP901
E
CN901
2P
UP-S
YEL
AC
IN
D901
1SS133T
D902
1SS133T
R901
100
D905
11EQS04
D903
11EQS04
D904
11EQS04
D906
11EQS04
C908
0.1μ
50V
F
C907
0.1μ
50V
F
C909
4700μ
16V
CN903
5P
SAN
AC DET
VCC2
SYS3.3V
RY-CONT
GND
P
TO
POW BOARD
(PAGE 54)
16

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

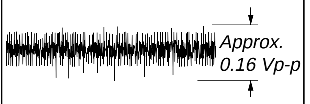
- **Waveforms**

BD SECTION

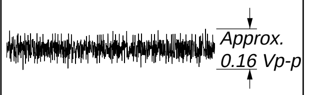
① TP166 (RF) (Play mode)



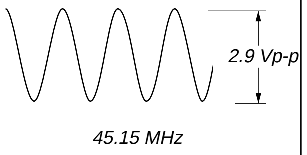
② TP108 (A) (Play mode)



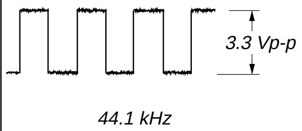
③ TP102,T105 (E, F)
(Play mode)



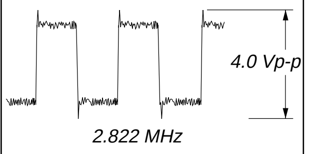
④ TP219 (OSCI)



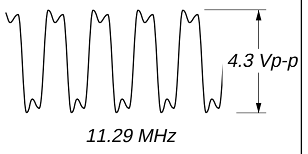
⑤ TP131 (LRCK)



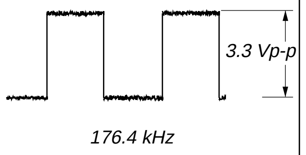
⑥ TP124 (BCK)



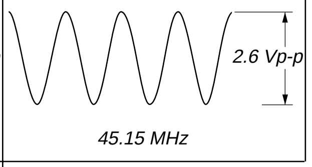
⑦ TP205 (FS256)



⑧ TP217 (FS4)

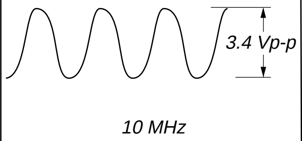


⑨ TP138 (1024FS)



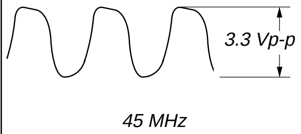
DIG SECTION

① IC801 ⑳ (XOUT)



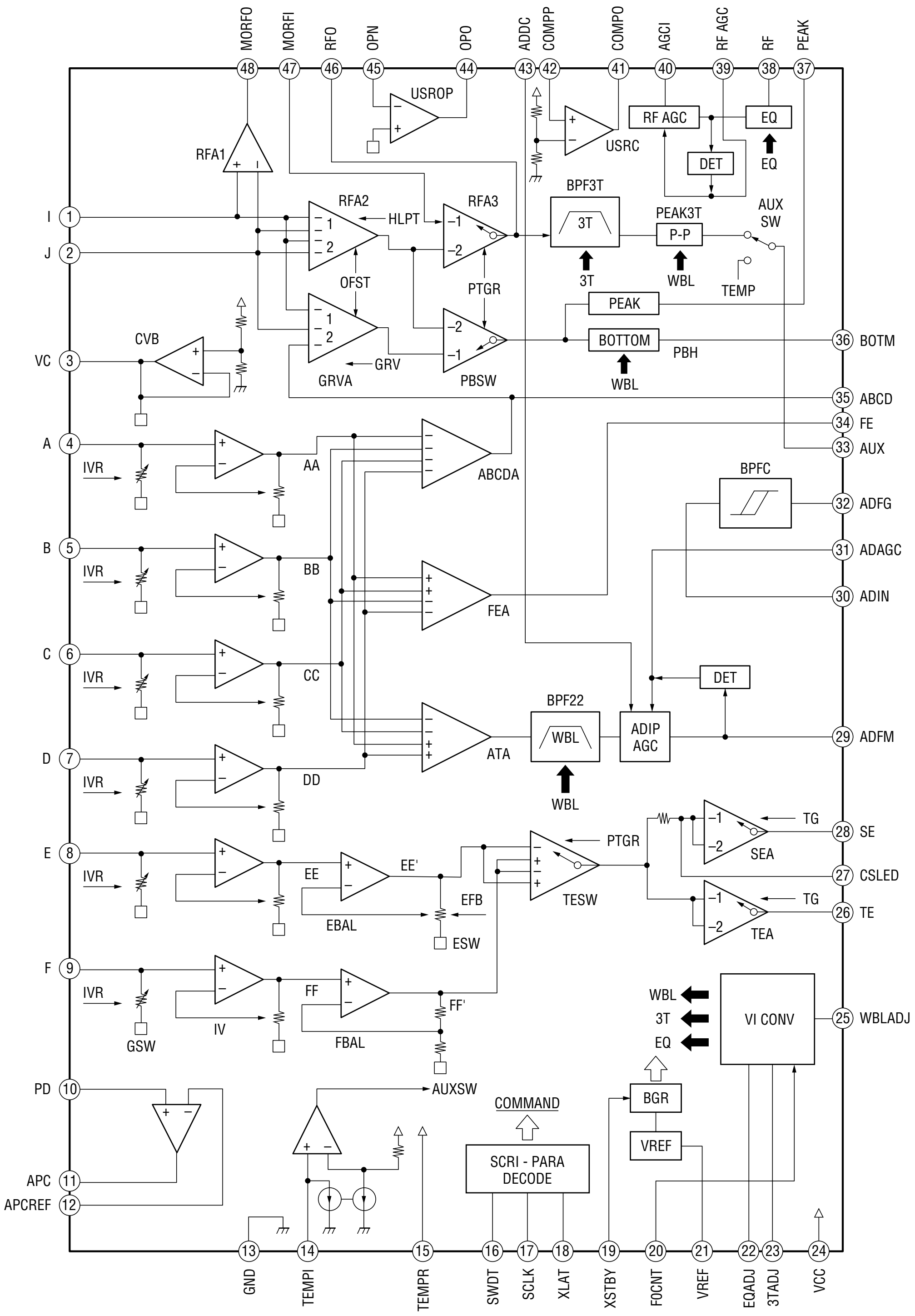
DA SECTION

① IC501 ⑫ (XOUT)



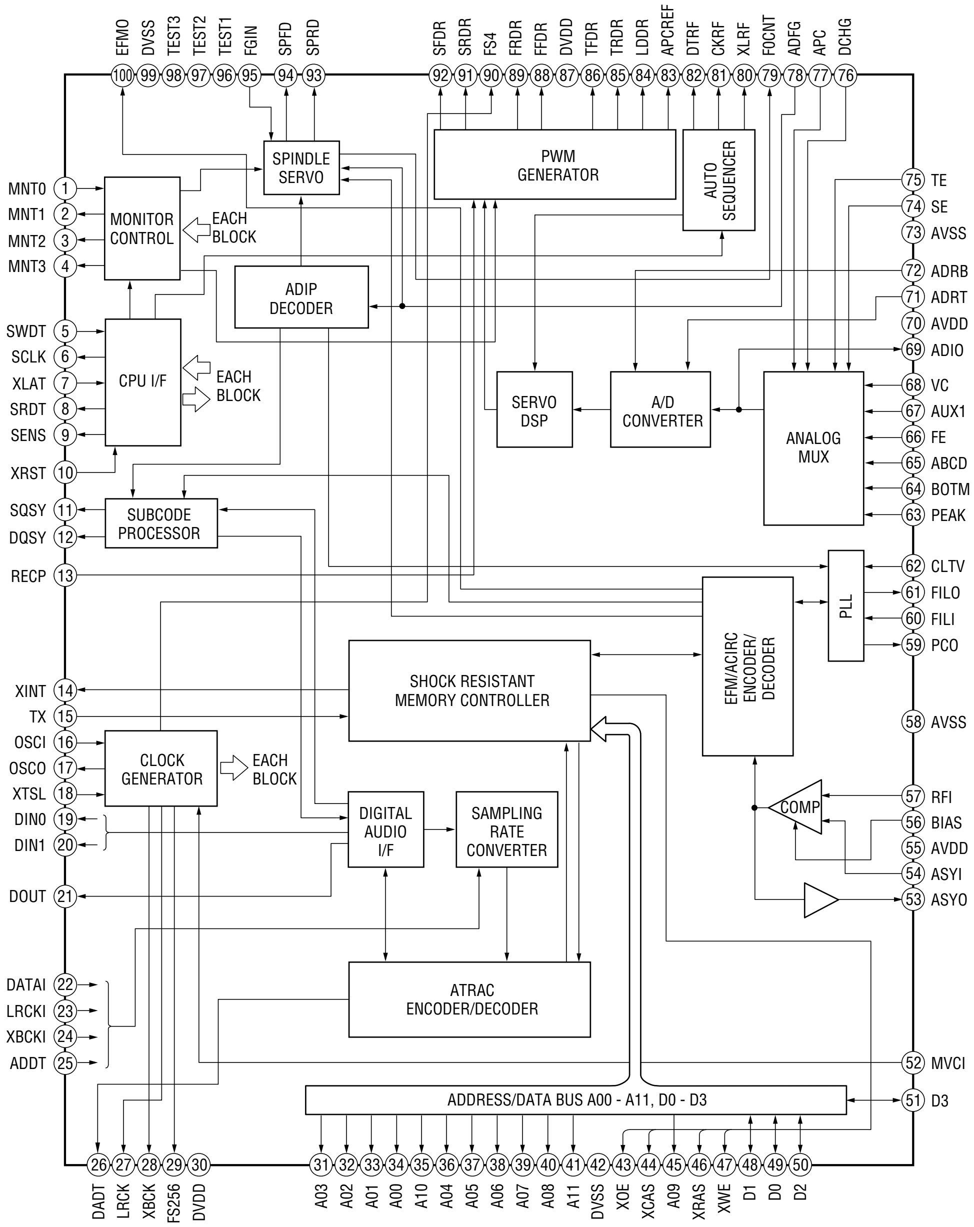
6-22. IC BLOCK DIAGRAMS

IC101 CXA2523AR (BD BOARD)

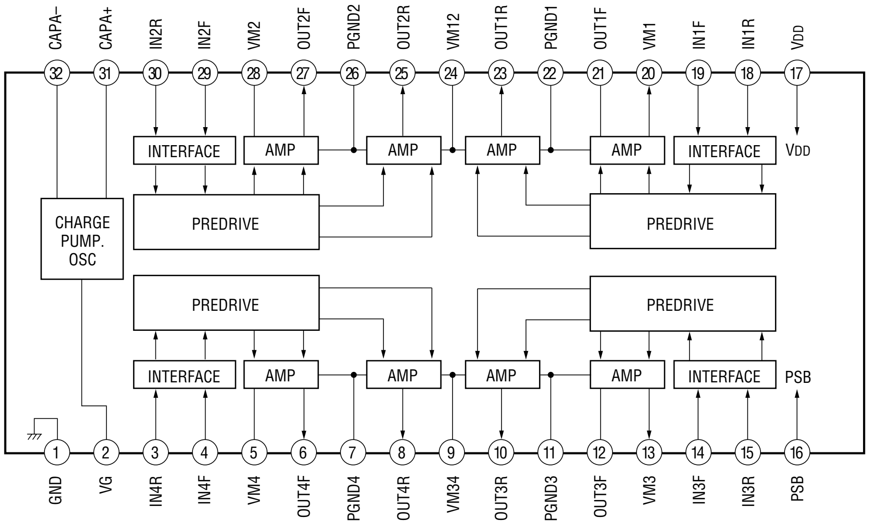


MORFO 48
MORFI 47
RFO 46
OPN 45
OPO 44
ADDC 43
COMPP 42
COMPO 41
AGCI 40
RF AGC 39
RF 38
PEAK 37
USROP
USRC
RF AGC
EQ
DET
EQ
RFA1
RFA2
HLPT
RFA3
BPF3T
3T
PEAK3T
P-P
AUX SW
3T
WBL
TEMP
OFST
PTGR
PEAK
BOTTOM
PBH
WBL
CVB
GRV
GRVA
PBSW
1 I
2 J
3 VC
4 A
5 B
6 C
7 D
8 E
9 F
10 PD
11 APC
12 APCREF
IVR
AA
BB
CC
DD
EE
FF
EE'
FF'
EFB
EBAL
FBAL
ESW
GSW
IV
ABCDA
FEA
ATA
BPFC
BPF22
WBL
ADIP AGC
DET
TG
SEA
TEA
TESW
PTGR
VI CONV
WBL
3T
EQ
BGR
VREF
COMMAND
SCRI - PARA DECODE
AUXSW
36 BOTM
35 ABCD
34 FE
33 AUX
32 ADFG
31 ADAGC
30 ADIN
29 ADFM
28 SE
27 CSLED
26 TE
25 WBLADJ
13 GND
14 TEMPI
15 TEMPR
16 SWDT
17 SCLK
18 XLAT
19 XSTBY
20 FOCNT
21 VREF
22 EQADJ
23 3TADJ
24 VCC

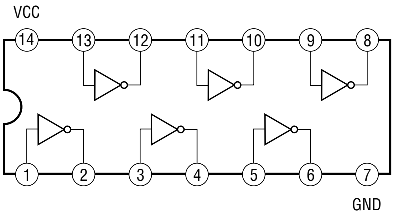
IC121 CXD2662R (BD BOARD)


EFMO 100
DVSS 99
TEST3 98
TEST2 97
TEST1 96
FGIN 95
SPFD 94
SPRD 93
SFDR 92
SRDR 91
FS4 90
FRDR 89
FFDR 88
DVDD 87
TFDR 86
TRDR 85
LDDR 84
APCREF 83
DTRF 82
CKRF 81
XLRF 80
FOCNT 79
ADFG 78
APC 77
DCHG 76
MNT0 1
MNT1 2
MNT2 3
MNT3 4
SWDT 5
SCLK 6
XLAT 7
SRDT 8
SENS 9
XRST 10
SQSY 11
DQSY 12
RECP 13
XINT 14
TX 15
OSCI 16
OSCO 17
XTSL 18
DIN0 19
DIN1 20
DOUT 21
DATAI 22
LRCKI 23
XBCKI 24
ADDT 25
75 TE
74 SE
73 AVSS
72 ADRB
71 ADRT
70 AVDD
69 ADIO
68 VC
67 AUX1
66 FE
65 ABCD
64 BOTM
63 PEAK
62 CLTV
61 FILO
60 FILI
59 PCO
58 AVSS
57 RFI
56 BIAS
55 AVDD
54 ASYI
53 ASYO
52 MVCI
51 D3
26 DADT
27 LRCK
28 XBCK
29 FS256
30 DVDD
31 A03
32 A02
33 A01
34 A00
35 A10
36 A04
37 A05
38 A06
39 A07
40 A08
41 A11
42 DVSS
43 XOE
44 XCAS
45 A09
46 XRAS
47 XWE
48 D1
49 D0
50 D2
SPINDLE SERVO
PWM GENERATOR
AUTO SEQUENCER
MONITOR CONTROL
EACH BLOCK
ADIP DECODER
CPU I/F
EACH BLOCK
SERVO DSP
A/D CONVERTER
ANALOG MUX
SUBCODE PROCESSOR
PLL
EFM/ACIRC ENCODER/ DECODER
SHOCK RESISTANT MEMORY CONTROLLER
CLOCK GENERATOR
EACH BLOCK
COMP
DIGITAL AUDIO I/F
SAMPLING RATE CONVERTER
ATRAC ENCODER/DECODER
ADDRESS/DATA BUS A00 - A11, D0 - D3

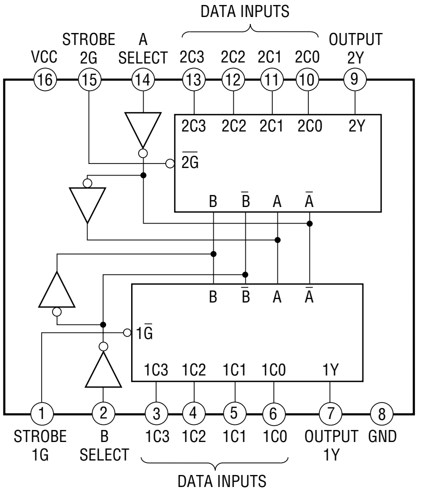
IC152 BH6511FS (BD BOARD)


CAPA– 32
CAPA+ 31
IN2R 30
IN2F 29
VM2 28
OUT2F 27
PGND2 26
OUT2R 25
VM12 24
OUT1R 23
PGND1 22
OUT1F 21
VM1 20
IN1F 19
IN1R 18
VDD 17
INTERFACE
AMP
AMP
AMP
AMP
INTERFACE
VDD
PREDRIVE
PREDRIVE
CHARGE PUMP. OSC
PREDRIVE
PREDRIVE
INTERFACE
AMP
AMP
AMP
AMP
INTERFACE
PSB
1 GND
2 VG
3 IN4R
4 IN4F
5 VM4
6 OUT4F
7 PGND4
8 OUT4R
9 VM34
10 OUT3R
11 PGND3
12 OUT3F
13 VM3
14 IN3F
15 IN3R
16 PSB

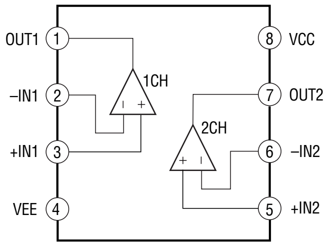
IC404,406 SN74HCU04ANS-E05 (DIO BOARD)


VCC
14
13
12
11
10
9
8
1
2
3
4
5
6
7
GND

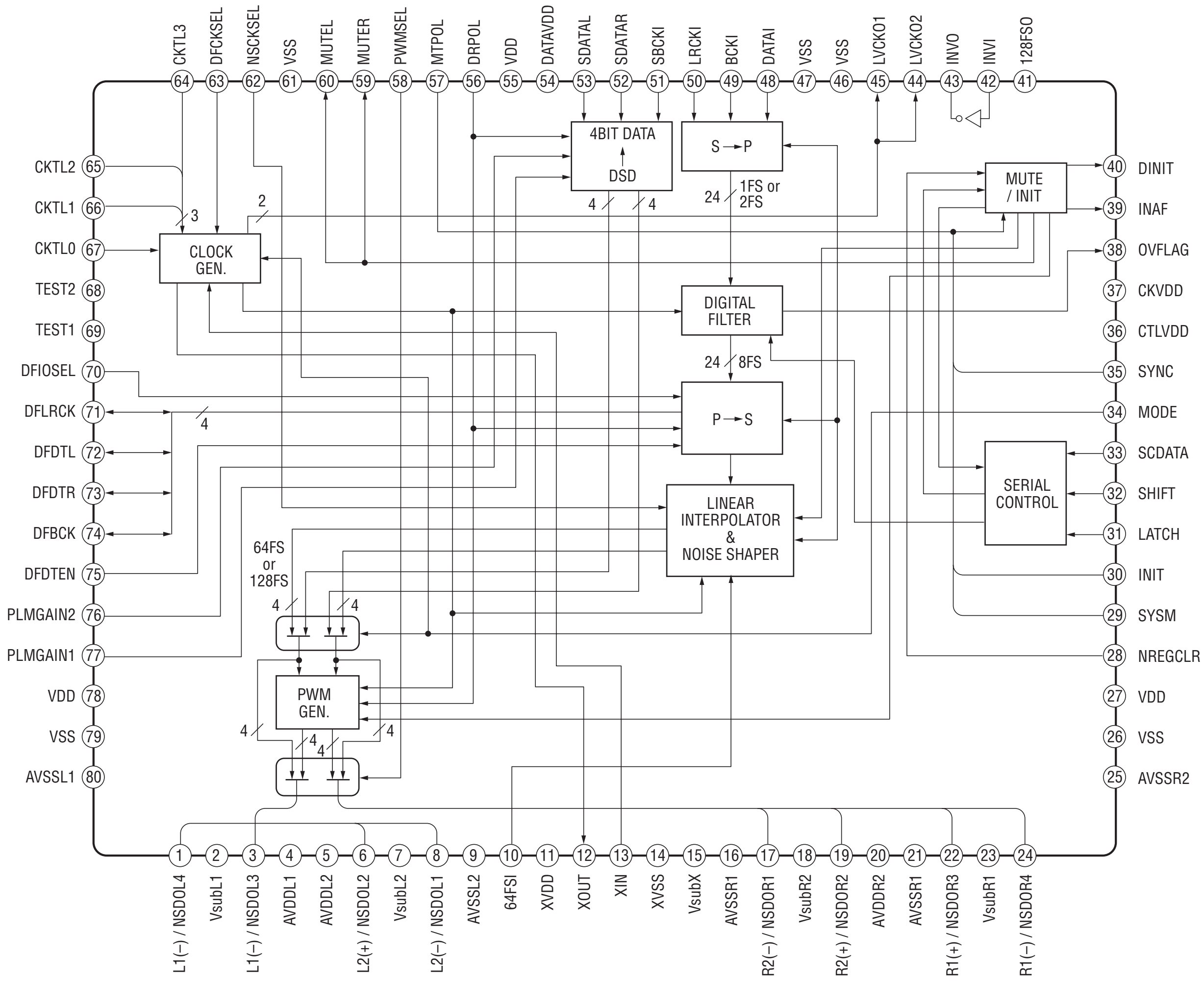
IC405 SN74HC153ANS-E05 (DIO BOARD)


DATA INPUTS
STROBE
A
OUTPUT
VCC
2G
SELECT
2C3
2C2
2C1
2C0
2Y
16
15
14
13
12
11
10
9
2C3
2C2
2C1
2C0
2Y
$\overline{2G}$
B
$\overline{B}$
A
$\overline{A}$
B
$\overline{B}$
A
$\overline{A}$
$\overline{1G}$
1C3
1C2
1C1
1C0
1Y
1
2
3
4
5
6
7
8
STROBE
1G
B
SELECT
1C3
1C2
1C1
1C0
OUTPUT
1Y
GND
DATA INPUTS

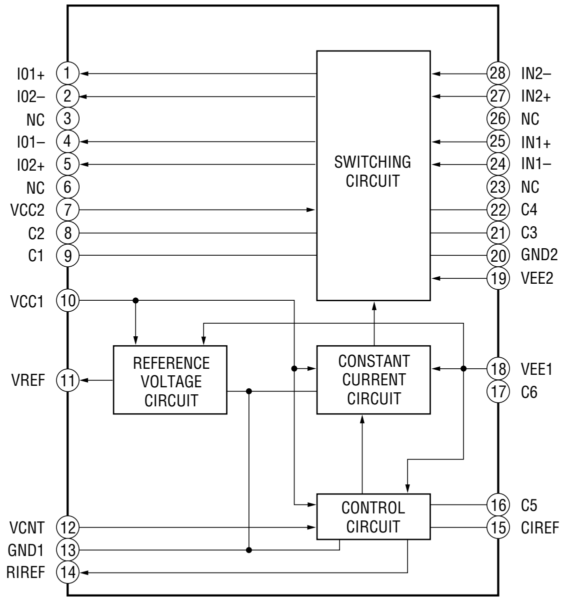
IC651 M5218AP (HP BOARD)


OUT1
1
–IN1
2
+IN1
3
VEE
4
1CH
2CH
8
VCC
7
OUT2
6
–IN2
5
+IN2

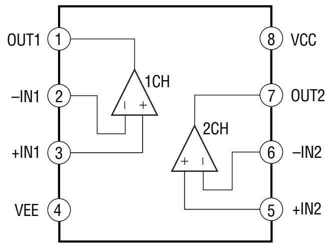
IC501 CXD9556AQ (DA BOARD)


CKTL3 64
DFCKSEL 63
NSCKSEL 62
VSS 61
MUTEL 60
MUTER 59
PWMSEL 58
MTPOL 57
DRPOL 56
VDD 55
DATAVDD 54
SDATAL 53
SDATAR 52
SBCKI 51
LRCKI 50
BCKI 49
DATAI 48
VSS 47
VSS 46
LVCKO1 45
LVCKO2 44
INVO 43
INVI 42
128FSO 41
CKTL2 65
CKTL1 66
CKTL0 67
TEST2 68
TEST1 69
DFIOSEL 70
DFLRCK 71
DFDTL 72
DFDTR 73
DFBCK 74
DFDTEN 75
PLMGAIN2 76
PLMGAIN1 77
VDD 78
VSS 79
AVSSL1 80
40 DINIT
39 INAF
38 OVFLAG
37 CKVDD
36 CTLVDD
35 SYNC
34 MODE
33 SCDATA
32 SHIFT
31 LATCH
30 INIT
29 SYSM
28 NREGCLR
27 VDD
26 VSS
25 AVSSR2
4BIT DATA
DSD
S → P
1FS or
2FS
24
4
4
3
2
CLOCK
GEN.
MUTE
/ INIT
DIGITAL
FILTER
24
8FS
P → S
4
LINEAR
INTERPOLATOR
&
NOISE SHAPER
SERIAL
CONTROL
64FS
or
128FS
4
4
PWM
GEN.
4
4
4
4
1 L1(–) / NSDOL4
2 VsubL1
3 L1(–) / NSDOL3
4 AVDDL1
5 AVDDL2
6 L2(+) / NSDOL2
7 VsubL2
8 L2(–) / NSDOL1
9 AVSSL2
10 64FSI
11 XVDD
12 XOUT
13 XIN
14 XVSS
15 VsubX
16 AVSSR1
17 R2(–) / NSDOR1
18 VsubR2
19 R2(+) / NSDOR2
20 AVDDR2
21 AVSSR1
22 R1(+) / NSDOR3
23 VsubR1
24 R1(–) / NSDOR4

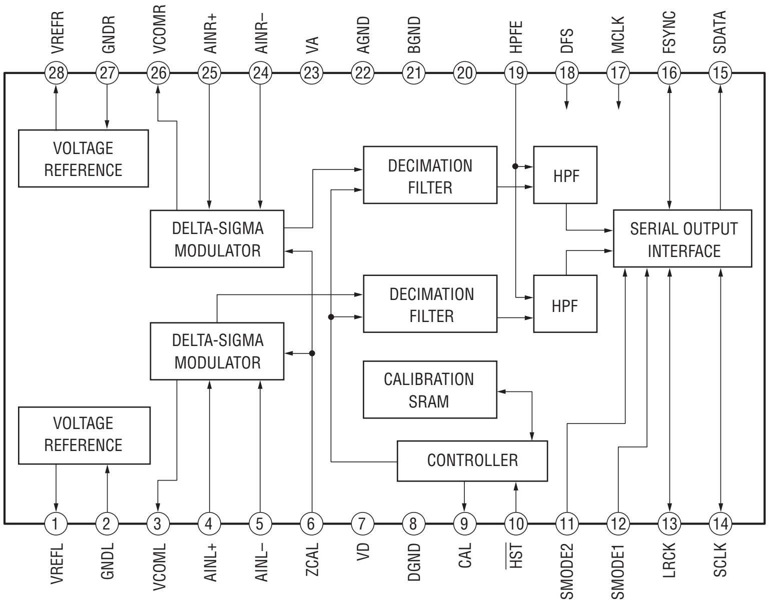
IC504,505 CXA8042AS (DA BOARD)


I01+ 1
I02– 2
NC 3
I01– 4
I02+ 5
NC 6
VCC2 7
C2 8
C1 9
VCC1 10
VREF 11
VCNT 12
GND1 13
RIREF 14
28 IN2–
27 IN2+
26 NC
25 IN1+
24 IN1–
23 NC
22 C4
21 C3
20 GND2
19 VEE2
18 VEE1
17 C6
16 C5
15 CIREF
SWITCHING CIRCUIT
REFERENCE VOLTAGE CIRCUIT
CONSTANT CURRENT CIRCUIT
CONTROL CIRCUIT

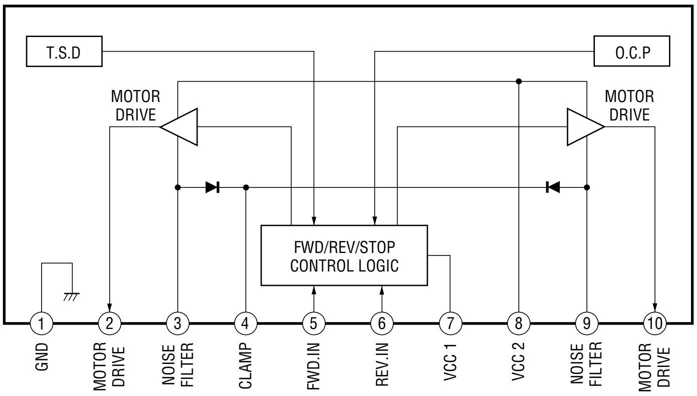
IC305,306,307,308 NJM2114D (AD BOARD)


OUT1 1
–IN1 2
+IN1 3
VEE 4
8 VCC
7 OUT2
6 –IN2
5 +IN2
1CH
2CH

IC302 AK5383VF (AD BOARD)


VREFR 28
GNDR 27
VCOMR 26
AINR+ 25
AINR– 24
VA 23
AGND 22
BGND 21
20
HPFE 19
DFS 18
MCLK 17
FSYNC 16
SDATA 15
VOLTAGE REFERENCE
DELTA-SIGMA MODULATOR
DECIMATION FILTER
HPF
SERIAL OUTPUT INTERFACE
DELTA-SIGMA MODULATOR
DECIMATION FILTER
HPF
CALIBRATION SRAM
VOLTAGE REFERENCE
CONTROLLER
1 VREFL
2 GNDL
3 VCOML
4 AINL+
5 AINL–
6 ZCAL
7 VD
8 DGND
9 CAL
10 HST
11 SMODE2
12 SMODE1
13 LRCK
14 SCLK

IC250 LB1641 (POW BOARD)


T.S.D
O.C.P
MOTOR DRIVE
MOTOR DRIVE
FWD/REV/STOP CONTROL LOGIC
1
2
3
4
5
6
7
8
9
10
GND
MOTOR DRIVE
NOISE FILTER
CLAMP
FWD.IN
REV.IN
VCC 1
VCC 2
NOISE FILTER
MOTOR DRIVE

6-23. IC PIN FUNCTION DESCRIPTION

• BD BOARD IC101 CXA2523AR (RF AMPLIFIER, FOCUS/TRACKING ERROR AMPLIFIER)

Pin No.	Pin Name	I/O	Description
1	I	I	RF signal input (I) that is supplied form the optical pickup detector and has already been I-V converted
2	J	I	RF signal input (J) that is supplied form the optical pickup detector and has already been I-V converted
3	VC	O	Middle point voltage (+1.65 V) generation output
4 to 9	A to F	I	Signal input from optical pick-up detector (A to F)
10	PD	I	Light amount monitor input from laser diode of optical pick-up
11	APC	O	Laser amplifier output to automatic power control circuit
12	APCREF	I	Reference voltage input for setting laser power from CXD2662R (IC121)
13	GND	—	Ground
14	TEMPI	I	Temperature sensor connection pin
15	TEMPR	O	Reference voltage output for temperature sensor
16	SWDT	I	Write data signal input from CXD2662R (IC121)
17	SCLK	I	Serial clock signal input from CXD2662R (IC121)
18	XLAT	I	Serial latch signal input from CXD2662R (IC121)
19	$\overline{\text{XSTBY}}$	I	Standby signal input
20	F0CNT	I	Control signal input of center frequency for internal circuit filter (BPF22, BPF3T, EQ) from CXD2662R (IC121)
21	VREF	O	Reference voltage output Not used in this system (Blank terminal)
22	EQADJ	I	Input pin for setting center frequency of internal circuit filter (EQ)
23	3TADJ	I	Input pin for setting center frequency of internal circuit filter (BPF3T)
24	VCC	—	Power supply (+33 V)
25	WBLADJ	I	Input pin for setting center frequency of internal circuit filter (BPF22)
26	TE	O	Tracking error signal output to CXD2662R (IC121)
27	CSLED	I	Connection pin of capacitor for low path filter of sled error
28	SE	O	Sled error signal output to CXD2662R (IC121)
29	ADFM	O	ADIP FM signal output
30	ADIN	I	Inputs ADIP FM signal by AC coupling
31	ADAGC	I	Connection pin of external capacitor for ADIP AGC
32	ADFG	O	ADIP dual FM signal output to CXD2662R (IC121) (2205 kHz ± 1 kHz)
33	AUX	O	Auxiliary signal (I3 signal/temperature signal) output to CXD2662R (IC121)
34	FE	O	Focus error signal output to CXD2662R (IC121)
35	ABCD	O	Light amount signal (ABCD) output to CXD2662R (IC121)
36	BOTM	O	Bottom hold signal output of light amount signal (RF/ABCD) to CXD2662R (IC121)
37	PEAK	O	Peak hold signal output of light amount signal (RF/ABCD) to CXD2662R (IC121)
38	RF	O	Playback EFM RF signal output to CXD2662R (IC121)
39	RFAGC	I	Connection pin of RF AGC circuit external capacitor
40	AGCI	I	Inputs RF signal by AC coupling
41	COMPO	O	Output terminal to user's comparator. Not used. (Blank terminal)
42	COMPP	I	Inverted input terminal from user's comparator. Not used. (Fixed to "L")
43	ADDC	I	The terminal to which external capacitor to cut off low frequency range of the ADIP amplifier, is going to be connected.
44	OPO	O	Output terminal to user's operational amplifier. Not used. (Blank terminal)
45	OPN	I	Inverted input terminal from user's operational amplifier. Not used. (Fixed to "L")
46	RFO	O	Output pin of RF signal
47	MORFI	I	Inputs MO RF signal by AC coupling
48	MORFO	O	Output pin of MO RF signal

• BD BOARD IC121 CXD2662R (DIGITAL SIGNAL PROCESSOR, DIGITAL SERVO SIGNAL PROCESSOR, EFM/ACIR ENCODER/DECODER, SHOCK-PROOF REMOTE CONTROLLER, ATRAC ENCODER/DECODER)

Pin No.	Pin Name	I/O	Description
1	MNT0 (FOK)	O	Focus OK signal output to system controller (IC801) Outputs “H” when focus is set (“L”: NG)
2	MNT1 (SHOCK)	O	Track jump detection signal output to system controller (IC801)
3	MNT2 (XBUSY)	O	Busy monitor signal output to system controller (IC801)
4	MNT3	O	Spindle servo lock status monitoring signal output to system controller (IC801)
5	SWDT	I	Inputs write data signal from system controller (IC801)
6	SCLK	I (S)	Inputs serial clock signal from system controller (IC801)
7	XLAT	I (S)	Inputs serial latch signal from system controller (IC801)
8	SRDT	O (3)	Outputs read data signal to system controller (IC801)
9	SENS	O (3)	Outputs internal status (SENSE) signal to system controller (IC801)
10	$\overline{\text{XRST}}$	I (S)	Inputs reset signal input from system controller (IC801) “L”: Reset
11	SQSY	O	Sub code Q sync (SCOR) output to system controller (IC801) Outputs “L” every 133 msec. Outputs “H” mostly
12	DQSY	O	Outputs digital-in U-bit CD format sub code Q sync (SCOR) to system controller (IC801) Outputs “L” every 133 msec. Outputs “H” mostly
13	RECP	I	Laser power switching signal input from system controller (IC801) “L”: Playback, “H”: Recording
14	XINT	O	Interrupt status output to system controller (IC801)
15	TX	I	Recording data output enable signal input from system controller (IC801). Transmission timing of the write signal is input. (Used also as ON/OFF of magnetic head)
16	OSCI	I	System clock (1024Fs = 451584 MHz) input
17	OSCO	O	System clock (1024Fs = 451584 MHz) output. Not used in this system (Blank terminal)
18	XTSL	I	System clock frequency setting input. “L”: 451584 MHz, “H”: 22.5792 kHz
19	DIN0	I	Recording system digital audio signal input (for digital optical -1/2 input and coaxial input)
20	DIN1	I	Recording system digital audio signal input. Not used (Fix at “L”)
21	DOUT	O	Playback system digital audio signal output (for digital optical output and coaxial input)
22	DATAI	I	Serial data input Not used (Fix at “L”)
23	LRCKI	I	L/R sampling clock signal input (44.1 kHz) Not used in this system (Fixed at “L”)
24	XBCKI	I	Bit clock signal input of serial input/output (2.8224 kHz) Not used in this system (Fixed at “L”)
25	ADDT	I	Recording data signal input from CXD9556AQ (IC501)
26	DADT	O	Playback data signal output from CXD9556AQ (IC501)
27	LRCK	O	L/R sampling clock signal output (44.1 kHz) to CXD9556AQ (IC501)
28	XBCK	O	Bit clock signal output of serial input/output data (44.1 kHz) to CXD9556AQ (IC501)
29	FS256	O	11.2896 MHz clock signal output Not used (Blank terminal)
30	DVDD	—	Power supply (+5 V) (Digital)
31 to 34	A03 to A00	O	Address signal output to D-RAM (IC124)
35	A10	O	Address signal output to external D-RAM Not used (Blank terminal)
36 to 40	A04 to A08	O	Address signal output to D-RAM (IC124)

* I (S) of I/O is schmitt input, I (A) is analog input, O (3) is 3-state output, O (A) is analog output

Pin No.	Pin Name	I/O	Description
41	A11	O	Address signal output to external D-RAM Not used (Blank terminal)
42	DVSS	—	Ground (Digital)
43	$\overline{\text{XOE}}$	O	Output enable signal output to D-RAM (IC124) "L": Active
44	$\overline{\text{XCAS}}$	O	Column address strobe signal output to D-RAM (IC124) "L": Active
45	A09	O	Address signal output to D-RAM (IC124)
46	$\overline{\text{XRAS}}$	O	Low address strobe signal output to D-RAM (IC124) "L": Active
47	$\overline{\text{XWE}}$	O	Write enable signal output to D-RAM (IC124) "L": Active
48	D1	I/O	Bi-directional data bus with D-RAM (IC124)
49	D0	I/O	
50	D2	I/O	
51	D3	I/O	
52	MVCI	I (S)	Input to digital-in PLL oscillation from external VCO. Not used (Fix at "L")
53	ASYO	O	Playback EFM full-swing output
54	ASYI	I (A)	Playback EFM asymmetry comparate voltage input
55	AVDD	—	Power supply (+3.3 V) (Analog)
56	BIAS	I (A)	Constant current input to playback EFM asymmetry circuit
57	RFI	I (A)	Playback EFM RF signal input from CXA2523AR (IC101)
58	AVSS	—	Ground (+3.3 V) (Analog)
59	PCO	O (3)	Phase comparator output to master clock of the master PLL of the record/playback EFM system
60	FILI	I (A)	Filter input to master clock of the master PLL of the record/playback EFM system
61	FILO	O (A)	Filter output to master clock of the master PLL of the record/playback EFM system
62	CLTV	I (A)	Internal VCO control voltage input to the master PLL of the record/playback EFM system
63	PEAK	I (A)	Peak hold signal input of light amount signal (RF/ABCD) from CXD2523AR (IC101)
64	BOTM	I (A)	Bottom hold signal input of light amount signal (RF/ABCD) from CXD2523AR (IC101)
65	ABCD	I (A)	Light amount signal (ABCD) from CXD2523AR (IC101)
66	FE	I (A)	Focus error signal input from CXD2523AR (IC101)
67	AUX1	I (A)	Auxiliary signal (I3 signal/temperature signal) output from CXD2523AR (IC101)
68	VC	I (A)	Middle point voltage (+1.65 V) output from CXD2523AR (IC101)
69	ADIO	O (A)	Monitor output of A/D converter input signal. Not used in this system (Blank terminal)
70	AVDD	—	Power supply (+3.3 V) (Analog)
71	ADRT	I (A)	A/D converter operation range upper limit voltage input. (Fixed to "H")
72	ADRB	I (A)	A/D converter operation range lower limit voltage input. (Fixed to "L")
73	AVSS	—	Ground (Analog)
74	SE	I (A)	Sled error signal input from CXD2523AR (IC101)
75	TE	I (A)	Tracking error signal input from CXD2523AR (IC101)
76	DCHG	I (A)	Connected to power line (+3.3 V)
77	APC	I (A)	Error signal input to laser automatic power control. Not used in this system (Fixed to "H")
78	ADFG	I (S)	ADIP dual FM signal input from CXD2523AR (IC101) (22.05 kHz ± 1 kHz)
79	F0CNT	O	Filter f0 control signal output to CXD2523AR (IC101)
80	XLRF	O	Serial latch signal output to CXD2523AR (IC101)
81	CKRF	O	Serial clock signal output to CXD2523AR (IC101)
82	DTRF	O	Write data signal output to CXD2523AR (IC101)
83	APCREF	O	Control signal output for reference voltage generation circuit of laser automatic power control to CXD2523AR (IC101)
84	LDDR	O	PWM signal output for laser automatic power control Not used in this system (Blank terminal)
85	TRDR	O	Tracking servo drive PWM signal output to BH6511FS (IC152) (-)

* I (S) of I/O is schmitt input, I (A) is analog input, O (3) is 3-state output, O (A) is analog output

Pin No.	Pin Name	I/O	Description
86	TFDR	O	Tracking servo drive PWM signal output to BH6511FS (IC152)
87	DVDD	—	Power supply (+3.3 V) (Digital)
88	FFDR	O	Focus servo drive PWM signal output to BH6511FS (IC152) (+)
89	FRDR	O	Focus servo drive PWM signal output to BH6511FS (IC152) (-)
90	FS4	O	176.4 kHz clock signal output (X'tal system) Not used in this system (Blank terminal)
91	SRDR	O	Sled servo drive PWM signal output to BH6511FS (IC152) (-)
92	SFDR	O	Sled servo drive PWM signal output to BH6511FS (IC152) (+)
93	SPRD	O	Spindle servo drive PWM signal output to BH6511FS (IC152) (-)
94	SPFD	O	Spindle servo drive PWM signal output to BH6511FS (IC152) (+)
95	FGIN	I (S)	Input pin for test (Fixed at "L")
96	TEST1	I	Input pin for test (Fixed at "L")
97	TEST2	I	Input pin for test (Fixed at "L")
98	TEST3	I	Input pin for test (Fixed at "L")
99	DVSS	—	Ground (Digital)
100	EFMO	O	EFM signal output for recording to overwrite head driver (IC181)

* I (S) of I/O is schmitt input, I (A) is analog input, O (3) is 3-state output, O (A) is analog output

• DIG BOARD IC801 M30805SGP (SYSTEM CONTROL)

Pin No.	Pin Name	I/O	Description
1	DATA(FL)	O	Serial data output for FL display
2	CLK(FL)	O	Serial clock output for FL display
3	A1-IN	I	Control A1 signal input
4	SIRCS	I	Remote control signal input
5	LOADING	I	Chucking-in detect input
6	CMD-REQ	O	REC LED signal output
7	CMD-BUSY	O	PAUSE LED signal output
8	MUTE	O	Mute signal output for analog output and headphones output
9	RESET(AD/DA)	O	Reset signal output for AD board and DA board
10	LATCH(AD)	O	Latch signal output for AD board (Not used)
11	LD-LOW	O	Loading motor control output “L”=high “H”=low
12	LDIN	O	Loading-in control output
13	LDOUT	O	Loading-out control output
14	MOD	O	Modulation switch output “L”=OFF “H”=ON
15	BYTE	I	Data bus width select input “L”=16bit “H”=8bit (Connected to ground)
16	CNVSS	I	Processor mode select input “H”=processor mode (Connected to 3.3V)
17	CLOCK	I	Sub system clock input (32.768kHz)
18	CLOCK	O	Sub system clock output (32.768kHz)
19	RESET	I	System reset input
20	XOUT	O	Main clock output (10MHz)
21	VSS	—	Ground
22	XIN	I	Main clock input (10MHz)
23	VCC	—	Power supply (+3.3V)
24	NMI	I	Non-maskable interrupt input (pull up)
25	DQSY	I	Sub code Q sync input of digital-in U-bit CD format
26	PDOWN	I	Power down detect input “L”=power down
27	SQSY	I	Sub code Q sync input
28	KEYB-CLK	O	Keyboard clock output (Not used)
29	LDON	O	Laser control output “H”=ON
30	LIMIT-IN	I	Sled move most inner circumstance detect input “L”=IN “H”=OUT
31	A1 OUT	O	Control A1 signal output
32	XINT	I	Interrupt signal input
33	LED3	O	PLAY LED signal output
34	XELT(CLIP)	O	LRCK signal output (Not used)
35	WRPWR	O	Laser power control output “H”=write “L”=read
36	CLK(IIC)	I/O	IIC clock input/output (Not used)
37	SDA(IIC)	I/O	IIC data input/output (Not used)
38	SWDT(DSP/ADDA)	O	Serial write data output for DSP and DA
39	VCC	—	Power supply (+3.3V)
40	SRDT(DSP)	I	Serial read data input from DSP
41	VSS	—	Ground
42	SCLK(DSP/ADDA)	O	Serial clock output for DSP and DA
43	REC-SW	I	REC-position detect input
44	TX0(CLIP)	O	DADT signal output (Not used)
45	RX0(CLIP)	I	DADT signal input (Not used)
46	CLK0(CLIP)	O	BCK signal output (Not used)
47	DIG-RST	O	Reset signal output for DIGTAL board
48	SENS	I	SENS signal input
49	PLAY-SW	I	Play-position detect input
50	XLATCH	O	Latch signal output for DSP

Pin No.	Pin Name	I/O	Description
51	OUT-SW	I	Pack-out position detect input
52	RDY	I	Ready signal input (Not used)
53	ALE/RAS	O	Address latch enabel output (Not used)
54	HOLD	I	Hold signal input (Not used)
55	HLDA/ALE	O	Hold acknowlidge output (Not used)
56	MNT2(XBUSY)	I	Busy signal input from DSP
57	VSS	—	Ground
58	MNT1(SHCK)	I	Shock signal input from DSP
59	VCC	—	Power supply (+3.3V)
60	EEP-WP	O	Write protect output for EEPROM (Not used)
61	SDA	I/O	Serial data input/output for EEPROM
62	BLCK	O	(Not used)
63	OE	O	Output enable output for FLASH ROM
64	BHE CASH	O	(Not used)
65	WE R/W	O	Write enable output for FLASH ROM
66	SCL	O	Serial clock output for EEPROM
67	REFRECT-SW	I	Disc refrect rate detect input “L”=High refrect rate “H”=Low refrect rate
68	PROTECT-SW	I	Disc protect detect input “L”=protect “H”=unprotect
69	CS0(F-ROM)	O	Chip select output for FLASH ROM
70	CS1(S-RAM)	O	Chip select output for S-RAM (Not used)
71	CS2(DIC-ROM)	O	Chip select output for DIC-ROM (Not used)
72,73	A20,A19	O	Address output for FLASH ROM
74	VCC	—	Power supply (+3.3V)
75	A18	O	Address output for FLASH ROM
76	VSS	—	Ground
77 to 85	A17 to A9	O	Address output for FLASH ROM
86 to 89	SEL3 to SEL0	I	Model set terminal
90	WP	O	Write protect output for FLASH ROM
91	VCC	—	Power supply (+3.3V)
92	A8	O	Address output for FLASH ROM
93	VSS	—	Ground
94 to 101	A7 to A0	O	Address output for FLASH ROM
102 to 113	D15 to D4	I/O	Data input/output for FLASH ROM
114	KEYBOARD-CLK-CTRL	O	Keyboard clock control signal output (Not used)
115	BUSY(IIC)	I	IIC busy input (Not used)
116	KEYBORD-DATA	I	Keyboard data input (Not used)
117,118	REC-VOL-B, REC-VOL-A	I	Digital REC LEVEL input from rotary encoder
119 to 122	D3 to D0	I/O	Data input/output for FLASH ROM
123,124	JOG0,JOG1	I	AMS control input from rotary encoder
125	LATCH(DA)	O	Data latch output for DA
126	OPT2/OPT1	O	Optical digital input select signal output “L”=OPT1 “H”=OPT2
127	CAX/OPT	O	Digital input system select signal output “L”=optical “H”=coaxial
128	CS(FL)	O	Chip select output for FL display
129	POWER(IIC)	O	IIC power-on signal output (Not used)
130	VSS	—	Ground

Pin No.	Pin Name	I/O	Description
131	STB	O	Strobe signal output “L”=standby “H”=power on
132	VCC	—	Power supply (+3.3V)
133	IOP	I	IOP level input (Not used)
134	INPUT	I	INPUT select input (A/D input)
135	REC MODE	I	REC MODE select input (A/D input)
136	TIMER	I	TIMER select input (A/D input)
137 to 139	KEY3 to KEY1	I	Key input (A/D input)
140	AVSS	—	Ground
141	KEY0	I	Key input (A/D input)
142	VREF	I	Reference voltage input
143	AVCC	—	Power supply (+3.3V)
144	CMD-TXD	O	(Not used)

SECTION 7
EXPLODED VIEWS

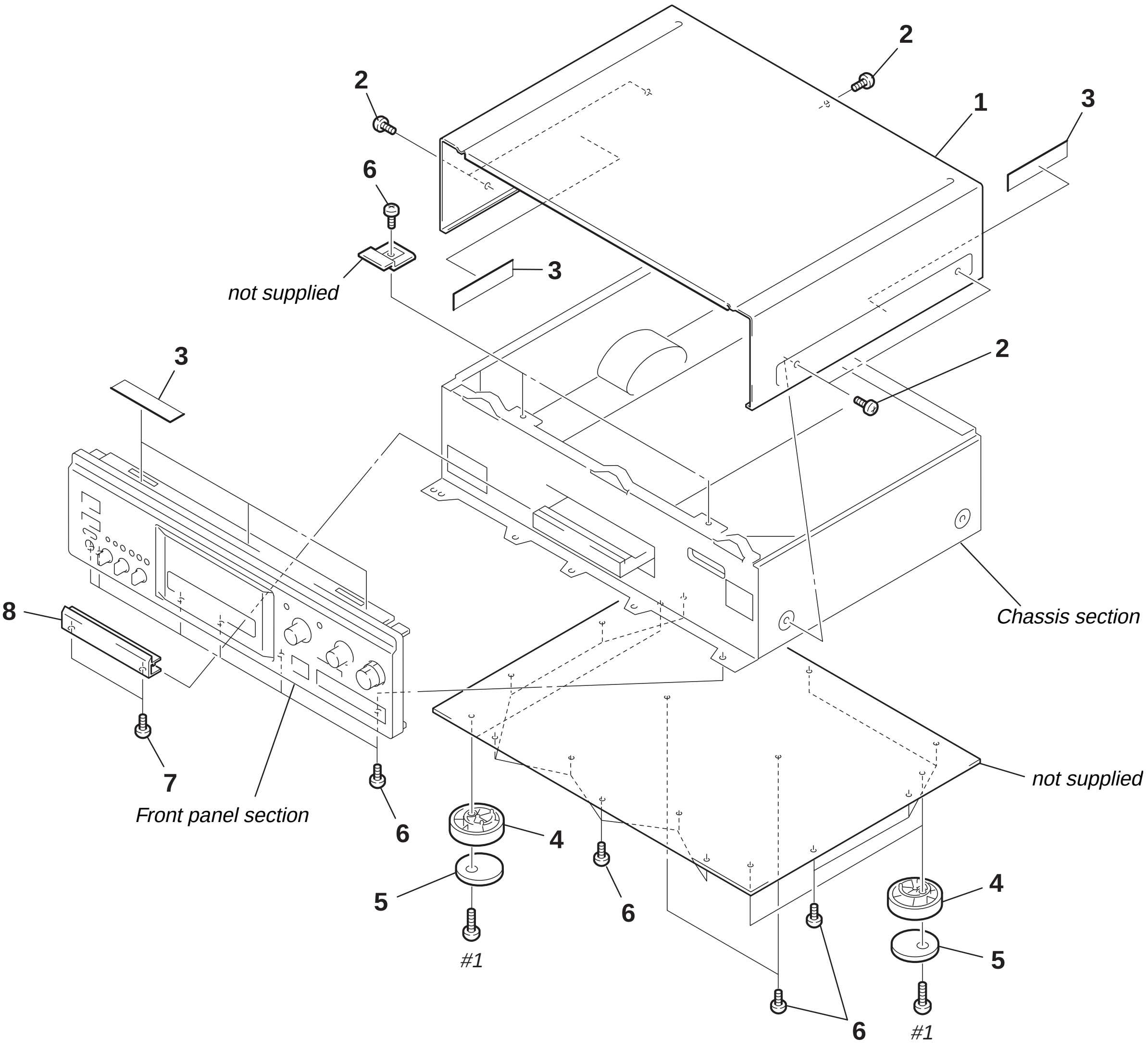
NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts of Color Cabinet's Color
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation
  CND : Canadian model

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

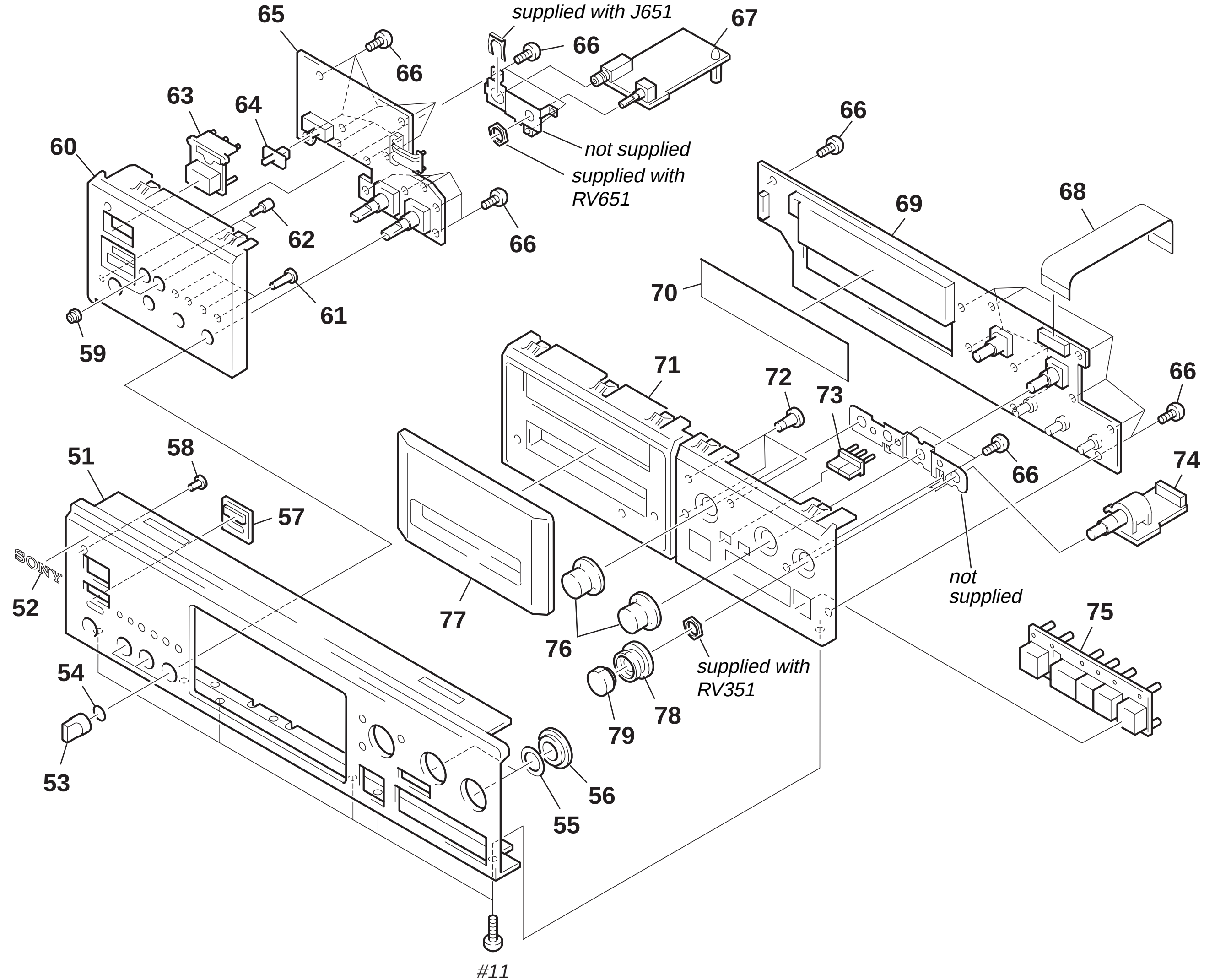
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

7-1. UPPER CASE ASSEMBLY



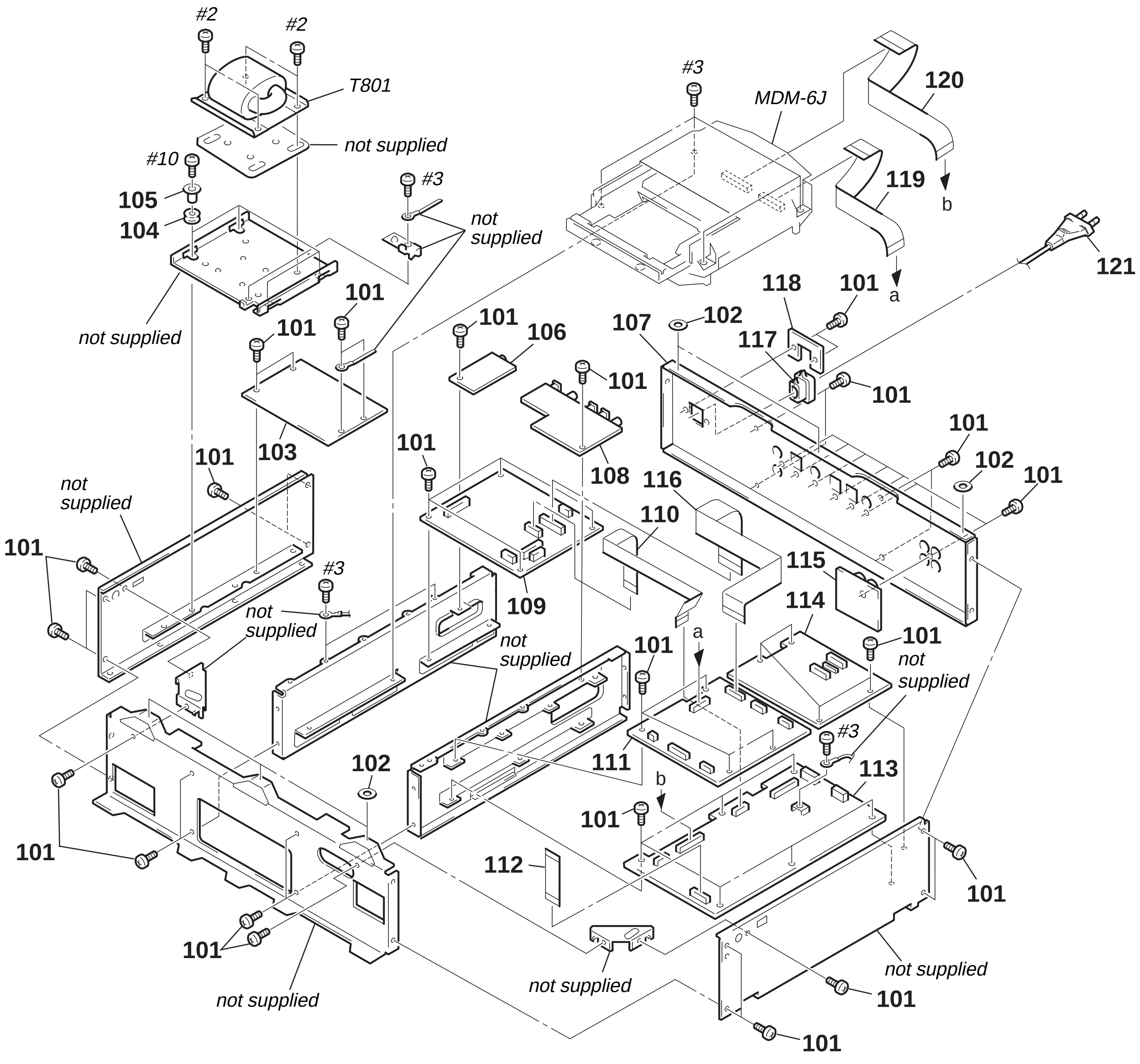
Ref. No.	Part No.	Description	Remarks
1	4-220-301-01	CASE (GOLD)	
1	4-220-301-11	CASE (BLACK)	
2	4-227-843-01	SCREW (TP), FLAT HEAD (BLACK)	
2	4-227-843-11	SCREW (TP), FLAT HEAD (GOLD)	
* 3	4-615-354-01	SPACER	
4	4-970-123-01	FOOT (F50180S)	
5	4-970-124-01	CUSHION (F50180S)	
6	4-929-074-01	SCREW (3X8)	
7	3-946-435-21	SCREW (M2.6)	
8	4-228-925-01	PANEL, LOADING (GOLD)	
8	4-228-925-11	PANEL, LOADING (BLACK)	

7-2. FRONT PANEL ASSEMBLY



Ref. No.	Part No.	Description	Remarks
51	4-228-931-01	PANEL, FRONT (GOLD) (AEP/UK)	
51	4-228-931-11	PANEL, FRONT (BLACK) (AEP/UK)	
51	4-228-931-21	PANEL, FRONT (BLACK) (US/CND)	
52	4-942-568-41	EMBLEM (NO.5), SONY (SILVER),,,(BLACK)	
53	4-992-539-01	KNOB (VOL)(GOLD)	
53	4-992-539-11	KNOB (VOL)(BLACK)	
54	3-354-981-01	SPRING (SUS), RING	
55	4-220-312-01	SHEET (RING), ADHESIVE	
56	4-220-295-01	RING(REC), ORNAMENTAL (GOLD)	
56	4-220-295-11	RING(REC), ORNAMENTAL (BLACK)	
57	4-987-520-01	WINDOW (REMOTE CONTROL) (GOLD)	
57	4-987-520-11	WINDOW (REMOTE CONTROL) (BLACK)	
58	4-987-519-01	INDICATOR (D2)	
59	4-220-711-01	INDICATOR (FILTER)	
60	4-228-887-01	BASE (L), PANEL (GOLD)	
60	4-228-887-11	BASE (L), PANEL (BLACK)	
61	4-220-319-01	BUTTON (MODE) (GOLD)	
61	4-220-319-11	BUTTON (MODE) (BLACK)	
62	4-220-317-01	BUTTON (FILTER)	
63	4-998-737-01	BUTTON (POWER) (GOLD)	
63	4-998-737-11	BUTTON (POWER) (BLACK)	
64	4-971-774-01	KNOB (TIMER) (BLACK)	
64	4-971-774-21	KNOB (TIMER) (GOLD)	
65	1-678-456-11	PSW BOARD	
66	4-951-620-01	SCREW (2.6X8), +BVTP	
67	A-4725-247-A	HP BOARD, COMPLETE	
68	1-792-853-11	WIRE (FLAT TYPE) (25 CORE)	
69	A-4725-215-A	FL BOARD, COMPLETE (US/CND)	
69	A-4725-241-A	FL BOARD, COMPLETE (AEP/UK)	
70	4-220-324-01	FILTER (FL) (GOLD)	
71	4-228-888-01	BASE (R), PANEL (GOLD)	
71	4-228-888-11	BASE (R), PANEL (BLACK)	
72	4-220-320-01	BUTTON (EDIT) (GOLD)	
72	4-220-320-11	BUTTON (EDIT) (BLACK)	
73	4-220-321-01	BUTTON (FR) (GOLD)	
73	4-220-321-11	BUTTON (FR) (BLACK)	
74	1-678-450-11	REC BOARD	
75	X-4951-690-1	BUTTON (PLAY) ASSY (GOLD)	
75	X-4951-691-1	BUTTON (PLAY) ASSY (BLACK)	
76	4-220-292-01	KNOB (AMS) (GOLD)	
76	4-220-292-11	KNOB (AMS) (BLACK)	
77	4-228-924-01	WINDOW (FL) (GOLD)	
77	4-228-924-11	WINDOW (FL) (BLACK)	
78	4-220-293-01	KNOB (REC-L) (GOLD)	
78	4-220-293-11	KNOB (REC-L) (BLACK)	
79	4-220-294-01	KNOB (REC-R) (GOLD)	
79	4-220-294-11	KNOB (REC-R) (BLACK)	

7-3. CHASSIS ASSEMBLY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102
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103
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108
116
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supplied
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#3
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102
b
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112
101
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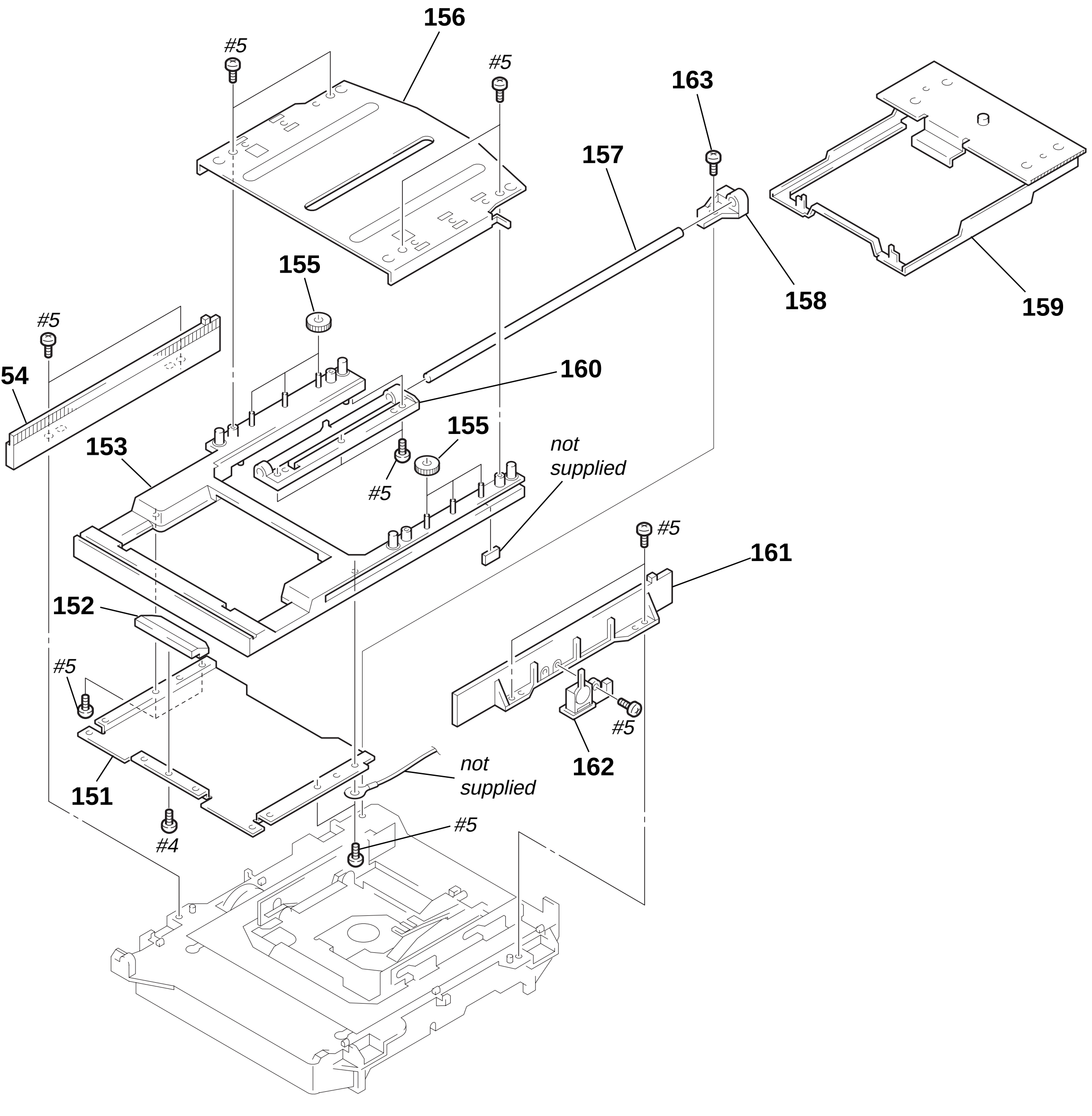
101
not supplied
not supplied
not supplied
101

Ref. No.	Part No.	Description	Remarks
101	4-929-074-01	SCREW (3X8)	
102	4-971-099-01	WASHER (P)	
103	1-678-452-11	AC BOARD	
* 104	4-888-798-00	BUSHING, RUBBER	
105	4-928-032-01	COLLAR (A)	
106	1-678-458-11	CONT-A1 BOARD	
107	4-228-930-12	PANEL, BACK (AEP/UK)	
107	4-228-930-22	PANEL, BACK (US)	
107	4-228-930-32	PANEL, BACK (CND)	
108	A-4725-251-A	DIO BOARD, COMPLETE	
109	A-4725-245-A	POW BOARD, COMPLETE	
110	1-791-167-11	WIRE (FLAT TYPE)	
111	A-4725-223-A	DIG BOARD, COMPLETE (US/CND)	
111	A-4725-249-A	DIG BOARD, COMPLETE (AEP/UK)	

Ref. No.	Part No.	Description	Remarks
112	1-792-854-11	WIRE (FLAT TYPE) (21 CORE)	
113	A-4725-243-A	DA BOARD, COMPLETE	
114	A-4725-244-A	AD BOARD, COMPLETE	
115	1-678-454-11	PJ BOARD	
116	1-792-852-11	WIRE (FLAT TYPE) (23 CORE)	
117	3-703-244-00	BUSHING (2104), CORD	
* 118	4-923-873-01	BRACKET, CORD STOPPER	
119	1-790-202-11	WIRE (FLAT TYPE) (23 CORE)	
120	1-791-168-11	WIRE (FLAT TYPE)	
⚠121	1-558-568-21	CORD, POWER (AEP)	
⚠121	1-696-586-11	CORD, POWER (UK)	
⚠121	1-790-154-31	CORD, POWER (US/CND)	
⚠T801	1-435-605-11	TRANSFORMER, POWER (AEP/UK)	
⚠T801	1-435-606-11	TRANSFORMER, POWER (US/CND)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

7-4. MECHANISM DECK ASSEMBLY-1 (MDM-6J)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153
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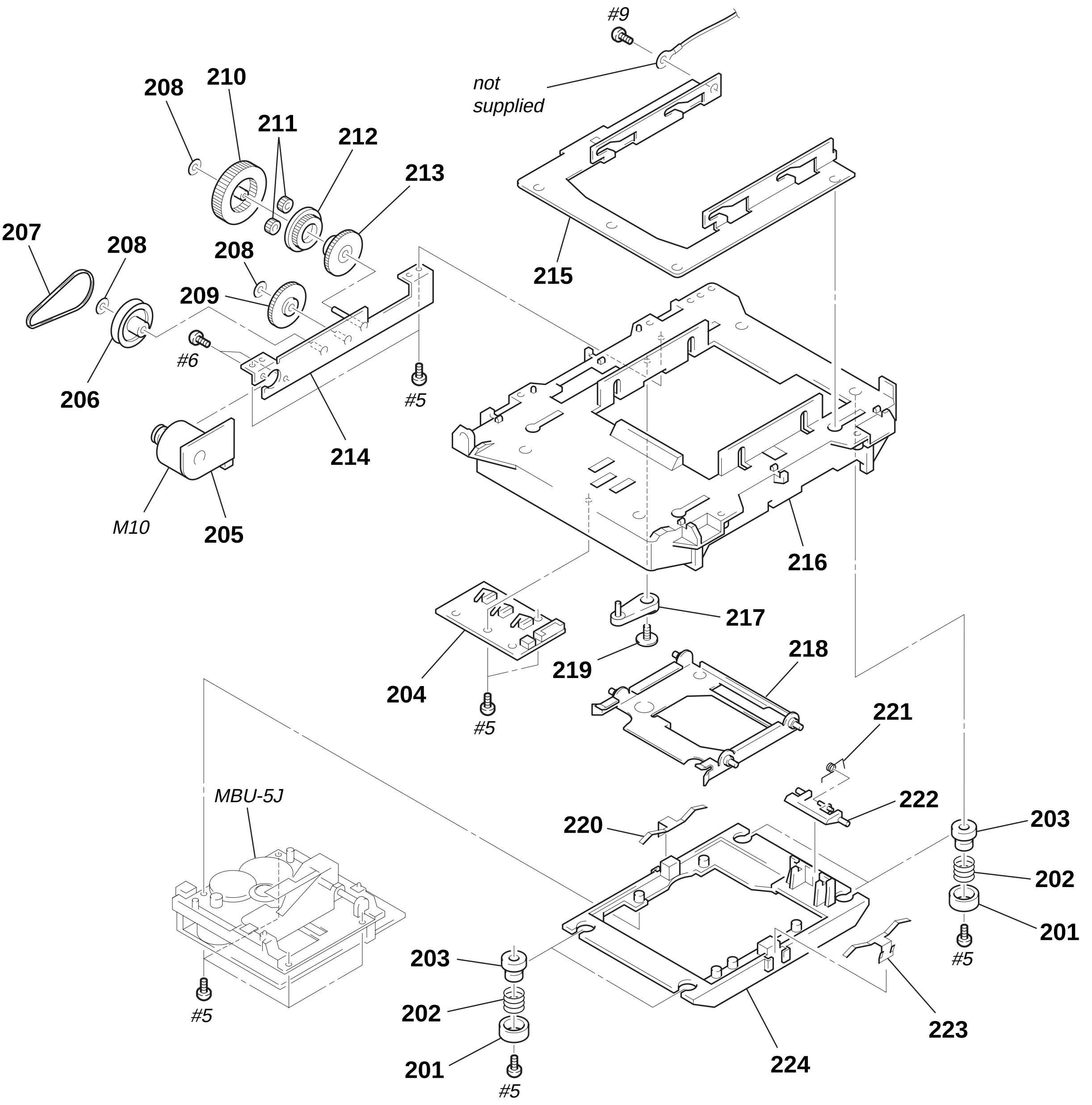
not supplied
151
#5
#4

Ref. No.	Part No.	Description	Remarks
* 151	4-999-519-01	BRACKET (TRAY)	
* 152	4-987-267-01	TABLE (EJECT)	
153	4-999-509-01	TRAY	
154	4-999-528-01	RACK (L)	
155	4-999-544-01	GEAR (TOP)	
* 156	4-999-532-01	BRACKET (TOP)	
157	4-999-535-01	SHAFT	
158	4-987-271-01	STOPPER (SHAFT B)	
159	X-4949-787-1	SLIDER (D) ASSY	
160	4-999-512-01	GUIDE (SHAFT)	
161	4-999-529-01	RACK (R)	
* 162	1-669-050-11	OUT SWITCH BOARD	
163	4-951-620-41	SCREW (2.6), +BVTP	

7-5. MECHANISM DECK ASSEMBLY-2 (MDM-6J)



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MBU-5J
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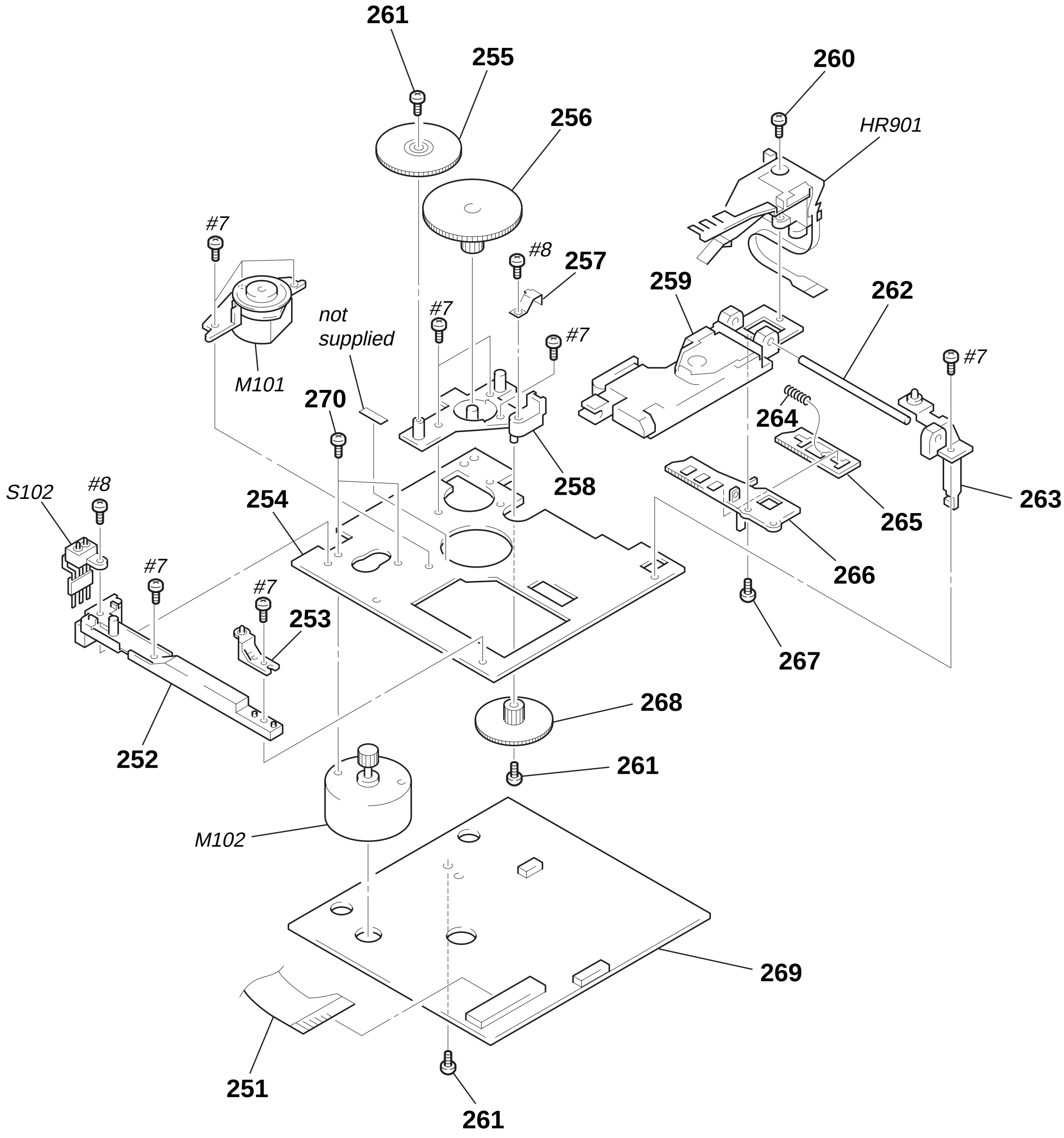
#5
#5
223
224

Ref. No.	Part No.	Description	Remarks
201	4-999-541-01	COLLAR (DAMPER)	
202	4-999-539-01	SPRING, COMPRESSION	
203	4-999-540-01	INSULATOR (MD)	
* 204	1-669-051-11	POSITION SWITCH BOARD	
* 205	1-669-049-11	MOTOR BOARD	
206	4-999-513-01	GEAR, PULLEY	
207	4-999-537-01	BELT (LOADING)	
208	4-968-919-31	WASHER, STOPPER	
209	4-999-514-01	GEAR	
210	4-999-515-01	GEAR (A), PLANET	
211	4-999-518-01	GEAR (D), PLANET	
212	4-999-517-01	GEAR (C), PLANET	
213	4-999-516-01	GEAR (B), PLANET	
* 214	X-4949-788-1	BRACKET (MOTOR) ASSY	
215	X-4949-786-6	SLIDER ASSY	
216	4-999-527-01	CHASSIS, MECHANICAL	
217	X-4949-790-1	LEVER (LOCK) ASSY	
218	X-4949-789-1	HOLDER ASSY	
219	4-933-134-01	SCREW (+PTPWH M2.6X6)	
220	4-999-533-01	SPRING (UDL), LEAF	
221	4-999-524-01	SPRING (OWH), TORSION	
222	4-999-511-01	LEVER (OWH)	
223	4-999-534-01	SPRING (UDR), LEAF	
224	4-999-510-01	HOLDER, BU	
M10	X-4949-791-1	MOTOR (LOADING) ASSY	

7-6. BASE UNIT (MBU-5J)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#7
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258
263
265
#7
266
#7
253
267
268
252
261
M102
269
251
261

Ref. No.	Part No.	Description	Remarks
251	1-667-954-11	PC BOARD, FLEXIBLE	
* 252	4-996-255-01	BASE (BU-C)	
* 253	4-996-267-01	BASE (BU-D)	
* 254	4-996-252-01	CHASSIS, BU	
255	4-996-260-01	GEAR (SL-A)	
256	4-996-261-01	GEAR (SL-B)	
257	4-996-263-01	SPRING (CLV), TORSION	
* 258	4-996-254-01	BASE (BU-B)	
⚠259	A-4672-541-A	OPTICAL PICK-UP KMS-260B/J1N	
260	4-988-560-01	SCREW (+P 1.7X6)	
261	3-372-761-01	SCREW (M1.7), TAPPING	
262	4-996-265-01	SHAFT, MAIN	
* 263	4-210-664-01	BASE (BU-A)	
264	4-996-258-01	SPRING, COMPRESSION	
265	4-996-257-01	RACK (SL)	
266	4-996-256-01	SL(BASE)	
267	4-900-590-01	SCREW, PRECISION SMALL	
268	4-996-262-01	GEAR (SL-C)	
269	A-4725-174-A	BD BOARD, COMPLETE	
270	4-211-036-01	SCREW (1.7X2.5), +PWH	
HR901	1-500-565-11	HEAD, OVER LIGHT	
M101	A-4672-475-A	MOTOR ASSY, SPINDLE	
M102	A-4672-474-A	MOTOR ASSY, SLED	
S101	1-762-148-21	SWITCH, PUSH (2 KEY) (REFLECT/PROTECT DET)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SECTION 8
ELECTRICAL PARTS LIST

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Abbreviation
  CND : Canadian model
- CAPACITORS:
  uF: µF
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: µH

When indicating parts by reference number, please include the board name.

- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA...: µA... , uPA... , µPA... ,
  uPB... , µPB... , uPC... , µPC... ,
  uPD..., µPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remarks
	1-678-452-11	AC BOARD ********			
		< CAPACITOR >			
⚠C901	1-113-925-11	CERAMIC	0.01uF	20.00%	250V
⚠C902	1-113-925-11	CERAMIC	0.01uF	20.00%	250V
⚠C903	1-113-920-11	CERAMIC	0.0022uF	20.00%	250V
⚠C904	1-113-920-11	CERAMIC	0.0022uF	20.00%	250V
⚠C905	1-113-920-11	CERAMIC	0.0022uF	20.00%	250V
⚠C906	1-113-920-11	CERAMIC	0.0022uF	20.00%	250V
C907	1-164-159-11	CERAMIC	0.1uF		50V
C908	1-164-159-11	CERAMIC	0.1uF		50V
C909	1-126-937-11	ELECT	4700uF	20.00%	16V
⚠C910	1-113-920-11	CERAMIC	0.0022uF	20.00%	250V
		< CONNECTOR >			
* CN901	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P			
CN902	1-564-321-00	PIN, CONNECTOR 2P			
		< DIODE >			
D901	8-719-911-19	DIODE 1SS133T-72			
D902	8-719-911-19	DIODE 1SS133T-72			
D903	8-719-210-21	DIODE 11EQS04-TA2B			
D904	8-719-210-21	DIODE 11EQS04-TA2B			
D905	8-719-210-21	DIODE 11EQS04-TA2B			
D906	8-719-210-21	DIODE 11EQS04-TA2B			
D907	8-719-911-19	DIODE 1SS133T-72			
		< GROUND >			
* EP901	4-870-539-00	PLATE, GROUND			
		< LINE FILTER >			
⚠LF901	1-424-485-11	FILTER, LINE			
		< TRANSISTOR >			
Q901	8-729-140-98	TRANSISTOR	2SD773-T-34		
		< RESISTOR >			
R901	1-247-807-31	CARBON	100	5%	1/4W
R902	1-249-425-11	CARBON	4.7K	5%	1/4W F
R903	1-249-437-11	CARBON	47K	5%	1/4W
		< RELAY >			
⚠RY901	1-755-356-11	RELAY			

Ref. No.	Part No.	Description			Remarks
		< TRANSFORMER >			
⚠TR901	1-435-585-11	TRANSFORMER, POWER (AEP/UK)			
⚠TR901	1-435-584-11	TRANSFORMER, POWER (US/CND)			

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Ref. No.	Part No.	Description			Remarks
	A-4725-244-A	AD BOARD, COMPLETE *******************			
		< CAPACITOR >			
C301	1-164-159-11	CERAMIC	0.1uF		50V
C302	1-164-159-11	CERAMIC	0.1uF		50V
C303	1-162-294-31	CERAMIC	0.001uF	10%	50V
C304	1-162-282-31	CERAMIC	100PF	10%	50V
C305	1-162-282-31	CERAMIC	100PF	10%	50V
C306	1-162-199-31	CERAMIC	10PF	5%	50V
C307	1-124-995-11	ELECT	220uF	20.00%	10V
C308	1-164-159-11	CERAMIC	0.1uF		50V
C309	1-124-995-11	ELECT	220uF	20.00%	10V
C310	1-164-159-11	CERAMIC	0.1uF		50V
C311	1-136-808-11	FILM	100PF	5.00%	100V
C312	1-136-808-11	FILM	100PF	5.00%	100V
C313	1-104-645-11	CERAMIC	1uF	20.00%	50V
C314	1-104-645-11	CERAMIC	1uF	20.00%	50V
C315	1-126-048-81	ELECT	10uF	20.00%	50V
C316	1-164-159-11	CERAMIC	0.1uF		50V
C317	1-126-048-81	ELECT	10uF	20.00%	50V
C318	1-164-159-11	CERAMIC	0.1uF		50V
C319	1-164-159-11	CERAMIC	0.1uF		50V
C320	1-126-048-81	ELECT	10uF	20.00%	50V
C321	1-164-159-11	CERAMIC	0.1uF		50V
C322	1-124-997-11	ELECT	470uF	20.00%	10V
C324	1-164-159-11	CERAMIC	0.1uF		50V
C326	1-164-159-11	CERAMIC	0.1uF		50V
C327	1-126-023-11	ELECT	100uF	20.00%	25V
C328	1-126-023-11	ELECT	100uF	20.00%	25V
C329	1-126-009-81	ELECT	100uF	20.00%	16V
C330	1-126-009-81	ELECT	100uF	20.00%	16V
C331	1-126-009-81	ELECT	100uF	20.00%	16V
C332	1-126-009-81	ELECT	100uF	20.00%	16V
C333	1-126-023-11	ELECT	100uF	20.00%	25V
C334	1-126-023-11	ELECT	100uF	20.00%	25V
C335	1-126-023-11	ELECT	100uF	20.00%	25V
C336	1-126-023-11	ELECT	100uF	20.00%	25V

AD **BD**

Ref. No.	Part No.	Description			Remarks
		< CONNECTOR >			
CN301	1-779-279-11	CONNECTOR,FFC(LIF(NON-ZIF)) 11P			
CN302	1-691-768-11	PLUG (MICRO CONNECTOR) 6P			
CN303	1-691-770-11	PLUG (MICRO CONNECTOR) 8P			
CN304	1-691-766-11	PLUG (MICRO CONNECTOR) 4P			
		< DIODE >			
D301	8-719-911-19	DIODE 1SS133T-72			
D302	8-719-911-19	DIODE 1SS133T-72			
D303	8-719-911-19	DIODE 1SS133T-72			
D304	8-719-911-19	DIODE 1SS133T-72			
D305	8-719-911-19	DIODE 1SS133T-72			
D306	8-719-911-19	DIODE 1SS133T-72			
D307	8-719-911-19	DIODE 1SS133T-72			
D308	8-719-911-19	DIODE 1SS133T-72			
D309	8-719-210-21	DIODE 11EQS04-TA2B			
D310	8-719-210-21	DIODE 11EQS04-TA2B			
D311	8-719-210-21	DIODE 11EQS04-TA2B			
		< IC >			
IC302	8-759-686-36	IC AK5383VF			
IC304	8-759-604-35	IC M5F78M05L			
IC305	8-759-712-02	IC NJM2114D			
IC306	8-759-712-02	IC NJM2114D			
IC307	8-759-712-02	IC NJM2114D			
IC308	8-759-712-02	IC NJM2114D			
		< COIL >			
L301	1-408-599-31	INDUCTOR	4.7uH		
* L302	1-410-858-21	INDUCTOR	0uH		
L303	1-408-599-31	INDUCTOR	4.7uH		
		< RESISTOR >			
R301	1-247-807-31	CARBON	100	5%	1/4W
R302	1-247-807-31	CARBON	100	5%	1/4W
R303	1-247-807-31	CARBON	100	5%	1/4W
R304	1-247-807-31	CARBON	100	5%	1/4W
R305	1-247-807-31	CARBON	100	5%	1/4W
R306	1-249-429-11	CARBON	10K	5%	1/4W
R307	1-249-429-11	CARBON	10K	5%	1/4W
R311	1-249-504-11	CARBON	10	5%	1/4W
R312	1-249-504-11	CARBON	10	5%	1/4W
R313	1-249-504-11	CARBON	10	5%	1/4W
R314	1-249-504-11	CARBON	10	5%	1/4W
R315	1-249-947-11	CARBON	10K	5%	1/4W
R316	1-249-947-11	CARBON	10K	5%	1/4W
R317	1-249-947-11	CARBON	10K	5%	1/4W
R318	1-249-947-11	CARBON	10K	5%	1/4W
R319	1-249-947-11	CARBON	10K	5%	1/4W
R320	1-249-947-11	CARBON	10K	5%	1/4W
R321	1-249-953-11	CARBON	18K	5%	1/4W
R322	1-249-953-11	CARBON	18K	5%	1/4W
R323	1-249-941-11	CARBON	5.6K	5%	1/4W
R324	1-249-941-11	CARBON	5.6K	5%	1/4W
R325	1-249-469-11	CARBON	100K	5%	1/4W
R326	1-249-469-11	CARBON	100K	5%	1/4W
R327	1-249-923-11	CARBON	1K	5%	1/4W
R328	1-249-923-11	CARBON	1K	5%	1/4W
R329	1-249-995-11	CARBON	1M	5%	1/4W
R330	1-249-995-11	CARBON	1M	5%	1/4W
R331	1-249-995-11	CARBON	1M	5%	1/4W
R332	1-249-995-11	CARBON	1M	5%	1/4W
R333	1-249-947-11	CARBON	10K	5%	1/4W
R334	1-249-947-11	CARBON	10K	5%	1/4W

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Ref. No.	Part No.	Description			Remarks
	A-4725-174-A	BD BOARD, COMPLETE *******************			
		< CAPACITOR >			
C101	1-125-822-11	TANTALUM	10uF	20.00%	10V
C102	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C103	1-125-822-11	TANTALUM	10uF	20.00%	10V
C104	1-125-822-11	TANTALUM	10uF	20.00%	10V
C105	1-163-021-91	CERAMIC CHIP	0.01uF	10.00%	50V
C106	1-163-275-11	CERAMIC CHIP	0.001uF	5.00%	50V
C107	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C108	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C109	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C111	1-164-344-11	CERAMIC CHIP	0.068uF	10.00%	25V
C112	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C113	1-109-982-11	CERAMIC CHIP	1uF	10.00%	10V
C115	1-164-489-11	CERAMIC CHIP	0.22uF	10.00%	16V
C116	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C117	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C118	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C119	1-125-822-11	TANTALUM	10uF	20.00%	10V
C121	1-125-822-11	TANTALUM	10uF	20.00%	10V
C122	1-163-021-91	CERAMIC CHIP	0.01uF	10.00%	50V
C123	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C124	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C127	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C128	1-163-021-91	CERAMIC CHIP	0.01uF	10.00%	50V
C129	1-107-823-11	CERAMIC CHIP	0.47uF	10.00%	16V
C130	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C131	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V
C132	1-107-823-11	CERAMIC CHIP	0.47uF	10.00%	16V
C133	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C134	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C135	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C136	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C142	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C143	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C144	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C146	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C151	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C152	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C153	1-163-021-91	CERAMIC CHIP	0.01uF	10.00%	50V
C156	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C158	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C160	1-104-601-11	ELECT CHIP	10uF	20.00%	10V
C161	1-104-601-11	ELECT CHIP	10uF	20.00%	10V
C163	1-163-021-91	CERAMIC CHIP	0.01uF	10.00%	50V
C164	1-163-021-91	CERAMIC CHIP	0.01uF	10.00%	50V
C167	1-163-038-11	CERAMIC CHIP	0.1uF		25V

Ref. No.	Part No.	Description			Remarks
C168	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C169	1-125-822-11	TANTALUM	10uF	20.00%	10V
C171	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C181	1-104-913-11	TANTAL. CHIP	10uF	20.00%	16V
C183	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C184	1-117-970-11	ELECT CHIP	22uF	20.00%	10V
C185	1-164-611-11	CERAMIC CHIP	0.001uF	10.00%	500V
C187	1-104-913-11	TANTAL. CHIP	10uF	20.00%	16V
C188	1-163-021-91	CERAMIC CHIP	0.01uF	10.00%	50V
C189	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C190	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C191	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C196	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C197	1-163-038-11	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
CN101	1-569-479-21	CONNECTOR, FPC 21P			
CN102	1-784-835-21	CONNECTOR,FFC(LIF(NON-ZIF)) 27P			
CN103	1-784-834-21	CONNECTOR,FFC(LIF(NON-ZIF)) 23P			
CN104	1-770-687-11	CONNECTOR, FFC/FPC 4P			
CN110	1-695-440-21	PIN, CONNECTOR (PC BOARD) 6P			
		< DIODE >			
D101	8-719-988-61	DIODE 1SS355TE-17			
D181	8-719-046-86	DIODE F1J6TP			
D183	8-719-046-86	DIODE F1J6TP			
		< IC >			
IC101	8-752-080-95	IC CXA2523AR			
IC103	8-729-903-10	IC FMW1-T-148			
IC121	8-752-404-64	IC CXD2662R			
IC123	8-759-096-87	IC TC7WU04FU(TE12R)			
IC124	8-759-498-44	IC MSM51V4400-70TS-K			
IC152	8-759-430-25	IC BH6511FS-E2			
IC171	8-759-640-41	IC BR24C08F-E2			
IC181	8-759-481-17	IC MC74ACT08DTR2			
IC192	8-759-460-72	IC BA033FP-E2			
		< COIL >			
L101	1-414-813-11	FERRITE	0uH		
L102	1-414-813-11	FERRITE	0uH		
L103	1-414-813-11	FERRITE	0uH		
L105	1-414-813-11	FERRITE	0uH		
L106	1-414-813-11	FERRITE	0uH		
L121	1-414-813-11	FERRITE	0uH		
L122	1-414-813-11	FERRITE	0uH		
L151	1-412-029-11	INDUCTOR CHIP	10uH		
L152	1-412-029-11	INDUCTOR CHIP	10uH		
L153	1-412-032-11	INDUCTOR CHIP	100uH		
L154	1-412-032-11	INDUCTOR CHIP	100uH		
L161	1-414-813-11	FERRITE	0uH		
L162	1-414-813-11	FERRITE	0uH		
L181	1-216-295-11	SHORT	0		
		< TRANSISTOR >			
Q101	8-729-403-35	TRANSISTOR	RN2304-TE85L		
Q102	8-729-026-53	TRANSISTOR	2SA1576A-T106-QR		
Q103	8-729-028-99	TRANSISTOR	RN1307-TE85L		
Q104	8-729-028-99	TRANSISTOR	RN1307-TE85L		
Q162	8-729-101-07	TRANSISTOR	2SB798-T1DK		

Ref. No.	Part No.	Description			Remarks
Q163	8-729-403-35	TRANSISTOR	RN2304-TE85L		
Q181	8-729-018-75	TRANSISTOR	2SJ278MYTR		
Q182	8-729-017-65	TRANSISTOR	2SK1764KYTR		
		< RESISTOR >			
R103	1-216-049-11	RES-CHIP	1K	5%	1/10W
R104	1-216-073-00	METAL CHIP	10K	5%	1/10W
R105	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R106	1-216-133-00	METAL CHIP	3.3M	5%	1/10W
R107	1-216-113-00	METAL CHIP	470K	5%	1/10W
R109	1-216-295-11	SHORT	0		
R110	1-216-073-00	METAL CHIP	10K	5%	1/10W
R111	1-216-295-11	SHORT	0		
R112	1-216-089-11	RES-CHIP	47K	5%	1/10W
R113	1-216-049-11	RES-CHIP	1K	5%	1/10W
R115	1-216-049-11	RES-CHIP	1K	5%	1/10W
R117	1-216-113-00	METAL CHIP	470K	5%	1/10W
R120	1-216-025-11	RES-CHIP	100	5%	1/10W
R121	1-216-097-11	RES-CHIP	100K	5%	1/10W
R123	1-216-295-11	SHORT	0		
R124	1-216-025-11	RES-CHIP	100	5%	1/10W
R125	1-216-295-11	SHORT	0		
R127	1-216-025-11	RES-CHIP	100	5%	1/10W
R129	1-216-295-11	SHORT	0		
R130	1-216-295-11	SHORT	0		
R131	1-216-073-00	METAL CHIP	10K	5%	1/10W
R132	1-216-097-11	RES-CHIP	100K	5%	1/10W
R133	1-216-117-00	METAL CHIP	680K	5%	1/10W
R134	1-216-049-11	RES-CHIP	1K	5%	1/10W
R135	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R136	1-216-049-11	RES-CHIP	1K	5%	1/10W
R137	1-216-295-11	SHORT	0		
R140	1-216-029-00	METAL CHIP	150	5%	1/10W
R142	1-216-073-00	METAL CHIP	10K	5%	1/10W
R143	1-216-073-00	METAL CHIP	10K	5%	1/10W
R144	1-216-295-11	SHORT	0		
R145	1-216-073-00	METAL CHIP	10K	5%	1/10W
R146	1-216-037-00	METAL CHIP	330	5%	1/10W
R147	1-216-025-11	RES-CHIP	100	5%	1/10W
R148	1-216-045-00	METAL CHIP	680	5%	1/10W
R149	1-216-073-00	METAL CHIP	10K	5%	1/10W
R150	1-216-295-11	SHORT	0		
R151	1-216-073-00	METAL CHIP	10K	5%	1/10W
R152	1-216-073-00	METAL CHIP	10K	5%	1/10W
R158	1-216-097-11	RES-CHIP	100K	5%	1/10W
R159	1-216-097-11	RES-CHIP	100K	5%	1/10W
R160	1-216-295-11	SHORT	0		
R161	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R162	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R163	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R164	1-216-045-00	METAL CHIP	680	5%	1/10W
R165	1-216-097-11	RES-CHIP	100K	5%	1/10W
R166	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R167	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R169	1-219-724-11	METAL CHIP	1	1%	1/4W
R170	1-216-073-00	METAL CHIP	10K	5%	1/10W
R171	1-216-073-00	METAL CHIP	10K	5%	1/10W
R173	1-216-121-11	RES-CHIP	1M	5%	1/10W
R175	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R177	1-216-061-00	METAL CHIP	3.3K	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R179	1-216-085-00	METAL CHIP	33K	5%	1/10W
R180	1-216-073-00	METAL CHIP	10K	5%	1/10W
R182	1-216-089-11	RES-CHIP	47K	5%	1/10W
R183	1-216-089-11	RES-CHIP	47K	5%	1/10W
R184	1-216-073-00	METAL CHIP	10K	5%	1/10W
R185	1-216-081-00	METAL CHIP	22K	5%	1/10W
R186	1-216-089-11	RES-CHIP	47K	5%	1/10W
R188	1-216-073-00	METAL CHIP	10K	5%	1/10W
R189	1-216-073-00	METAL CHIP	10K	5%	1/10W
R190	1-216-073-00	METAL CHIP	10K	5%	1/10W
R195	1-216-073-00	METAL CHIP	10K	5%	1/10W
R196	1-216-295-11	SHORT	0		
R197	1-216-295-11	SHORT	0		
R198	1-216-296-91	SHORT	0		
		< SWITCH >			
S101	1-762-596-21	SWITCH, PUSH (1KEY)(LIMIT IN)			

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Ref. No.	Part No.	Description			Remarks
	1-678-458-11	CONT-A1 BOARD *************			
		< CAPACITOR >			
C461	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C462	1-104-646-11	CERAMIC	2.2uF	20.00%	50V
C463	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C464	1-163-038-11	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
CN461	1-784-923-11	PIN, CONNECTOR 7P			
		< DIODE >			
D461	8-719-988-61	DIODE 1SS355TE-17			
		< GROUND >			
EP461	1-537-771-21	TERMINAL BOARD, GROUND			
		< JACK >			
J461	1-779-655-21	JACK (SMALL TYPE)(2GANG)(CONTROL A1II)			
		< JUMPER RESISTOR >			
JR801	1-216-296-91	SHORT	0		
		< TRANSISTOR >			
Q461	8-729-620-05	TRANSISTOR	2SC2603TP-EF		
		< RESISTOR >			
R461	1-216-073-00	METAL CHIP	10K	5%	1/10W
R462	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R463	1-216-001-00	METAL CHIP	10	5%	1/10W
R464	1-216-025-11	RES-CHIP	100	5%	1/10W
R465	1-216-067-00	METAL CHIP	5.6K	5%	1/10W

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Ref. No.	Part No.	Description			Remarks
	A-4725-243-A	DA BOARD, COMPLETE ******************			
		< BAR >			
* BB501	1-560-242-31	BUS BAR 5P			
		< CAPACITOR >			
C430	1-126-934-11	ELECT	220uF	20.00%	10V
C431	1-164-159-11	CERAMIC	0.1uF		50V
C432	1-164-159-11	CERAMIC	0.1uF		50V
C433	1-104-664-11	ELECT	47uF	20.00%	16V
C434	1-126-934-11	ELECT	220uF	20.00%	10V
C435	1-164-159-11	CERAMIC	0.1uF		50V
C436	1-164-159-11	CERAMIC	0.1uF		50V
C437	1-104-664-11	ELECT	47uF	20.00%	16V
C442	1-164-159-11	CERAMIC	0.1uF		50V
C501	1-126-934-11	ELECT	220uF	20.00%	10V
C502	1-162-294-31	CERAMIC	0.001uF	10%	50V
C503	1-164-159-11	CERAMIC	0.1uF		50V
C504	1-124-995-11	ELECT	220uF	20.00%	10V
C505	1-164-159-11	CERAMIC	0.1uF		50V
C506	1-124-995-11	ELECT	220uF	20.00%	10V
C507	1-164-159-11	CERAMIC	0.1uF		50V
C508	1-124-995-11	ELECT	220uF	20.00%	10V
C509	1-164-159-11	CERAMIC	0.1uF		50V
C510	1-124-995-11	ELECT	220uF	20.00%	10V
C511	1-164-159-11	CERAMIC	0.1uF		50V
C512	1-126-934-11	ELECT	220uF	20.00%	10V
C513	1-164-159-11	CERAMIC	0.1uF		50V
C514	1-126-934-11	ELECT	220uF	20.00%	10V
C515	1-164-159-11	CERAMIC	0.1uF		50V
C516	1-164-159-11	CERAMIC	0.1uF		50V
C517	1-164-159-11	CERAMIC	0.1uF		50V
C519	1-102-943-00	CERAMIC	6.0PF		50V
C520	1-102-943-00	CERAMIC	6.0PF		50V
C525	1-126-013-11	ELECT	1000uF	20.00%	16V
C526	1-126-049-11	ELECT	22uF	20.00%	25V
C527	1-136-165-00	MYLAR	0.1uF	5.00%	50V
C528	1-126-049-11	ELECT	22uF	20.00%	25V
C529	1-164-159-11	CERAMIC	0.1uF		50V
C530	1-164-159-11	CERAMIC	0.1uF		50V
C531	1-136-165-00	MYLAR	0.1uF	5.00%	50V
C532	1-164-159-11	CERAMIC	0.1uF		50V
C533	1-164-159-11	CERAMIC	0.1uF		50V
C535	1-164-159-11	CERAMIC	0.1uF		50V
C537	1-126-009-81	ELECT	100uF	20.00%	16V
C541	1-126-009-81	ELECT	100uF	20.00%	16V
C543	1-164-159-11	CERAMIC	0.1uF		50V
C544	1-136-165-00	MYLAR	0.1uF	5.00%	50V
C545	1-136-165-00	MYLAR	0.1uF	5.00%	50V
C547	1-126-022-11	ELECT	47uF	20.00%	25V
C548	1-126-022-11	ELECT	47uF	20.00%	25V
C549	1-136-165-00	MYLAR	0.1uF	5.00%	50V
C550	1-136-165-00	MYLAR	0.1uF	5.00%	50V
C551	1-126-009-81	ELECT	100uF	20.00%	16V
C553	1-126-009-81	ELECT	100uF	20.00%	16V
C556	1-130-973-00	FILM	0.022uF	5.00%	63V

Ref. No.	Part No.	Description			Remarks
C557	1-130-973-00	FILM	0.022uF	5.00%	63V
C562	1-136-154-00	MYLAR	0.012uF	5.00%	50V
C563	1-136-154-00	MYLAR	0.012uF	5.00%	50V
C564	1-136-154-00	MYLAR	0.012uF	5.00%	50V
C565	1-136-154-00	MYLAR	0.012uF	5.00%	50V
C566	1-130-479-00	MYLAR	0.0047uF	5%	50V
C567	1-130-479-00	MYLAR	0.0047uF	5%	50V
C568	1-130-479-00	MYLAR	0.0047uF	5%	50V
C569	1-130-479-00	MYLAR	0.0047uF	5%	50V
C570	1-130-467-00	MYLAR	470PF	5%	50V
C571	1-130-467-00	MYLAR	470PF	5%	50V
C572	1-130-467-00	MYLAR	470PF	5%	50V
C573	1-130-467-00	MYLAR	470PF	5%	50V
C574	1-162-294-31	CERAMIC	0.001uF	10%	50V
C575	1-162-282-31	CERAMIC	100PF	10%	50V
C576	1-130-479-00	MYLAR	0.0047uF	5%	50V
C577	1-130-479-00	MYLAR	0.0047uF	5%	50V
C578	1-162-282-31	CERAMIC	100PF	10%	50V
C580	1-130-471-00	MYLAR	0.001uF	5%	50V
C581	1-130-471-00	MYLAR	0.001uF	5%	50V
C582	1-126-052-11	ELECT	100uF	20.00%	50V
C583	1-126-052-11	ELECT	100uF	20.00%	50V
C588	1-124-699-11	ELECT	220uF	20.00%	25V
C589	1-124-699-11	ELECT	220uF	20.00%	25V
C590	1-162-294-31	CERAMIC	0.001uF	10%	50V
C602	1-102-934-00	CERAMIC	1.0PF		50V
C603	1-162-211-31	CERAMIC	33PF	5%	50V
C605	1-164-159-11	CERAMIC	0.1uF		50V
C606	1-164-159-11	CERAMIC	0.1uF		50V
C607	1-164-159-11	CERAMIC	0.1uF		50V
C608	1-164-159-11	CERAMIC	0.1uF		50V
C609	1-164-159-11	CERAMIC	0.1uF		50V
C610	1-164-159-11	CERAMIC	0.1uF		50V
C611	1-164-159-11	CERAMIC	0.1uF		50V
C613	1-162-215-31	CERAMIC	47PF	5%	50V
C615	1-164-159-11	CERAMIC	0.1uF		50V
		< CONNECTOR >			
CN501	1-779-289-11	CONNECTOR,FFC(LIF(NON-ZIF)) 21P			
CN502	1-779-295-11	CONNECTOR,FFC(LIF(NON-ZIF)) 27P			
CN503	1-793-565-11	CONNECTOR,FFC(LIF(NON-ZIF)) 13P			
CN504	1-784-923-11	PIN, CONNECTOR 7P			
CN505	1-691-766-11	PLUG (MICRO CONNECTOR) 4P			
CN506	1-784-922-11	PIN, CONNECTOR 5P			
CN507	1-691-772-11	PLUG (MICRO CONNECTOR) 10P			
		< DIODE >			
D503	8-719-911-19	DIODE 1SS133T-72			
D505	8-719-210-21	DIODE 11EQS04-TA2B			
		< TERMINAL >			
ET501	4-924-264-01	TERMINAL, MOUNT			
		< IC >			
IC501	8-759-678-29	IC CXD9556AQ			
IC503	8-759-604-35	IC M5F78M05L			
IC504	8-759-371-51	IC CXA8042AS			
IC505	8-759-371-51	IC CXA8042AS			
IC508	8-759-712-02	IC NJM2114D			
IC509	8-759-712-02	IC NJM2114D			
IC510	8-759-712-02	IC NJM2114D			
IC511	8-759-712-02	IC NJM2114D			
		< COIL >			
L501	1-408-599-31	INDUCTOR	4.7uH		
L502	1-408-599-31	INDUCTOR	4.7uH		
* L503	1-410-858-21	INDUCTOR	0uH		
* L504	1-410-858-21	INDUCTOR	0uH		
L505	1-408-599-31	INDUCTOR	4.7uH		
L506	1-408-599-31	INDUCTOR	4.7uH		
L507	1-408-599-31	INDUCTOR	4.7uH		
L508	1-408-599-31	INDUCTOR	4.7uH		
L509	1-408-599-31	INDUCTOR	4.7uH		
* L518	1-410-858-21	INDUCTOR	0uH		
* L519	1-410-858-21	INDUCTOR	0uH		
		< TRANSISTOR >			
Q505	8-729-140-98	TRANSISTOR	2SD773-T-34		
		< RESISTOR >			
R501	1-247-807-31	CARBON	100	5%	1/4W
R502	1-247-807-31	CARBON	100	5%	1/4W
R503	1-247-807-31	CARBON	100	5%	1/4W
R504	1-247-807-31	CARBON	100	5%	1/4W
R505	1-247-807-31	CARBON	100	5%	1/4W
R506	1-247-807-31	CARBON	100	5%	1/4W
R507	1-247-807-31	CARBON	100	5%	1/4W
R510	1-247-807-31	CARBON	100	5%	1/4W
R511	1-247-807-31	CARBON	100	5%	1/4W
R518	1-247-807-31	CARBON	100	5%	1/4W
R519	1-249-401-11	CARBON	47	5%	1/4W F
R520	1-249-425-11	CARBON	4.7K	5%	1/4W F
R521	1-259-404-11	CARBON	100	5%	1/6W
R522	1-259-404-11	CARBON	100	5%	1/6W
R523	1-259-404-11	CARBON	100	5%	1/6W
R524	1-259-404-11	CARBON	100	5%	1/6W
R525	1-259-404-11	CARBON	100	5%	1/6W
R526	1-259-404-11	CARBON	100	5%	1/6W
R527	1-259-404-11	CARBON	100	5%	1/6W
R528	1-259-404-11	CARBON	100	5%	1/6W
R529	1-259-416-11	CARBON	330	5%	1/6W
R530	1-259-416-11	CARBON	330	5%	1/6W
R531	1-249-504-11	CARBON	10	5%	1/4W
R532	1-249-504-11	CARBON	10	5%	1/4W
R533	1-249-504-11	CARBON	10	5%	1/4W
R534	1-249-504-11	CARBON	10	5%	1/4W
R535	1-249-504-11	CARBON	10	5%	1/4W
R536	1-249-504-11	CARBON	10	5%	1/4W
R537	1-249-504-11	CARBON	10	5%	1/4W
R538	1-249-504-11	CARBON	10	5%	1/4W
R539	1-249-885-11	CARBON	27	5%	1/4W
R540	1-249-885-11	CARBON	27	5%	1/4W
R541	1-249-885-11	CARBON	27	5%	1/4W
R542	1-249-885-11	CARBON	27	5%	1/4W
R543	1-249-542-11	CARBON	390	5%	1/4W

Ref. No.	Part No.	Description			Remarks
R544	1-249-542-11	CARBON	390	5%	1/4W
R545	1-249-542-11	CARBON	390	5%	1/4W
R546	1-249-542-11	CARBON	390	5%	1/4W
R547	1-249-941-11	CARBON	5.6K	5%	1/4W
R548	1-249-941-11	CARBON	5.6K	5%	1/4W
R549	1-249-941-11	CARBON	5.6K	5%	1/4W
R550	1-249-941-11	CARBON	5.6K	5%	1/4W
R551	1-249-941-11	CARBON	5.6K	5%	1/4W
R552	1-249-941-11	CARBON	5.6K	5%	1/4W
R553	1-249-941-11	CARBON	5.6K	5%	1/4W
R554	1-249-941-11	CARBON	5.6K	5%	1/4W
R555	1-249-923-11	CARBON	1K	5%	1/4W
R556	1-249-923-11	CARBON	1K	5%	1/4W
R559	1-249-923-11	CARBON	1K	5%	1/4W
R560	1-249-923-11	CARBON	1K	5%	1/4W
R577	1-249-520-11	CARBON	47	5%	1/4W
R578	1-249-520-11	CARBON	47	5%	1/4W
R581	1-249-429-11	CARBON	10K	5%	1/4W
R582	1-249-429-11	CARBON	10K	5%	1/4W
R583	1-249-429-11	CARBON	10K	5%	1/4W
R584	1-249-469-11	CARBON	100K	5%	1/4W
R585	1-249-469-11	CARBON	100K	5%	1/4W
R586	1-259-412-11	CARBON	220	5%	1/6W
R587	1-259-412-11	CARBON	220	5%	1/6W
R588	1-259-434-11	CARBON	1.8K	5%	1/6W
R589	1-259-434-11	CARBON	1.8K	5%	1/6W
		< RELAY >			
RY501	1-515-802-11	RELAY			
		< VIBRATOR >			
X501	1-760-955-11	VIBRATOR, CRYSTAL 45MHz			

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Ref. No.	Part No.	Description			Remarks
	A-4725-223-A	DIG BOARD, COMPLETE (US/CND) ***************************			
	A-4725-249-A	DIG BOARD, COMPLETE (AEP/UK) ***************************			
		< CAPACITOR >			
C801	1-163-222-11	CERAMIC CHIP	5PF		50V
C802	1-163-224-11	CERAMIC CHIP	7PF		50V
C803	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C804	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C805	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C806	1-126-964-11	ELECT	10uF	20.00%	50V
C807	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C808	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C810	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C815	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C821	1-104-664-11	ELECT	47uF	20.00%	10V
C822	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C823	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C824	1-104-665-11	ELECT	100uF	20.00%	10V
C841	1-163-001-11	CERAMIC CHIP	220PF	10%	50V

Ref. No.	Part No.	Description			Remarks
C842	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C843	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C844	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C845	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C846	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C847	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C848	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C849	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C850	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C851	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C852	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C853	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C854	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C855	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C856	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C857	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C858	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C859	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C860	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C861	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C862	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C863	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C864	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C865	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C866	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C867	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C868	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C869	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C870	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C871	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C872	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C873	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C874	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C875	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C877	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C878	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C879	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C880	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C881	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C882	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C883	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C884	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C885	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C886	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C887	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C888	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
		< CONNECTOR >			
CN801	1-778-692-11	CONNECTOR, FFC/FPC 21P			
CN802	1-784-370-21	CONNECTOR, FFC/FPC 11P			
CN803	1-793-991-11	CONNECTOR, FFC/FPC 23P			
CN804	1-793-991-11	CONNECTOR, FFC/FPC 23P			
CN805	1-790-669-21	PIN, CONNECTOR (PC BOARD) 9P			
CN806	1-778-998-21	PIN, CONNECTOR (PC BOARD) 3P			
CN807	1-784-382-21	CONNECTOR, FFC/FPC 25P			

Ref. No.	Part No.	Description			Remarks
		< IC >			
IC801	8-759-677-81	IC M30805SGP			
IC802	8-759-686-23	IC MT28F800B3WG10T-333			
IC805	8-759-460-72	IC BA033FP-E2			
		< RESISTOR >			
R3	1-216-025-11	RES-CHIP	100	5%	1/10W
R42	1-216-295-11	SHORT	0		
R117	1-216-295-11	SHORT	0		
R118	1-216-295-11	SHORT	0		
R129	1-216-295-11	SHORT	0		
R801	1-216-073-00	METAL CHIP	10K	5%	1/10W
R802	1-216-073-00	METAL CHIP	10K	5%	1/10W
R803	1-216-073-00	METAL CHIP	10K	5%	1/10W
R804	1-216-073-00	METAL CHIP	10K	5%	1/10W
R805	1-216-295-11	SHORT	0		
R806	1-216-073-00	METAL CHIP	10K	5%	1/10W
R807	1-216-073-00	METAL CHIP	10K	5%	1/10W
R808	1-216-073-00	METAL CHIP	10K	5%	1/10W
R809	1-216-073-00	METAL CHIP	10K	5%	1/10W
R810	1-216-073-00	METAL CHIP	10K	5%	1/10W
R811	1-216-073-00	METAL CHIP	10K	5%	1/10W
R812	1-216-073-00	METAL CHIP	10K	5%	1/10W
R814	1-216-073-00	METAL CHIP	10K	5%	1/10W
R816	1-216-073-00	METAL CHIP	10K	5%	1/10W
R817	1-216-073-00	METAL CHIP	10K	5%	1/10W (US/CND)
R818	1-216-073-00	METAL CHIP	10K	5%	1/10W (AEP/UK)
R819	1-216-073-00	METAL CHIP	10K	5%	1/10W (AEP/UK)
R820	1-216-073-00	METAL CHIP	10K	5%	1/10W (US/CND)
R834	1-216-085-00	METAL CHIP	33K	5%	1/10W
R835	1-216-073-00	METAL CHIP	10K	5%	1/10W
R836	1-216-073-00	METAL CHIP	10K	5%	1/10W
R837	1-216-073-00	METAL CHIP	10K	5%	1/10W
R838	1-216-073-00	METAL CHIP	10K	5%	1/10W
R839	1-216-073-00	METAL CHIP	10K	5%	1/10W
R840	1-216-073-00	METAL CHIP	10K	5%	1/10W
R841	1-216-073-00	METAL CHIP	10K	5%	1/10W
R842	1-216-073-00	METAL CHIP	10K	5%	1/10W
R843	1-216-073-00	METAL CHIP	10K	5%	1/10W
R844	1-216-073-00	METAL CHIP	10K	5%	1/10W
R845	1-216-073-00	METAL CHIP	10K	5%	1/10W
R846	1-216-073-00	METAL CHIP	10K	5%	1/10W
R847	1-216-073-00	METAL CHIP	10K	5%	1/10W
R848	1-216-073-00	METAL CHIP	10K	5%	1/10W
R851	1-216-073-00	METAL CHIP	10K	5%	1/10W
R852	1-216-073-00	METAL CHIP	10K	5%	1/10W
R856	1-216-295-11	SHORT	0		
R857	1-216-295-11	SHORT	0		
R858	1-216-295-11	SHORT	0		
R861	1-216-073-00	METAL CHIP	10K	5%	1/10W
R862	1-216-073-00	METAL CHIP	10K	5%	1/10W
R863	1-216-073-00	METAL CHIP	10K	5%	1/10W
R864	1-216-073-00	METAL CHIP	10K	5%	1/10W
R865	1-216-295-11	SHORT	0		
R866	1-216-295-11	SHORT	0		
R867	1-216-295-11	SHORT	0		

Ref. No.	Part No.	Description			Remarks
R868	1-216-295-11	SHORT	0		
R869	1-216-295-11	SHORT	0		
R870	1-216-295-11	SHORT	0		
R872	1-216-295-11	SHORT	0		
R873	1-216-295-11	SHORT	0		
R877	1-216-073-00	METAL CHIP	10K	5%	1/10W
R878	1-216-073-00	METAL CHIP	10K	5%	1/10W
R879	1-216-073-00	METAL CHIP	10K	5%	1/10W
R881	1-216-295-11	SHORT	0 (US/CND)		
		< COMPOSITION CIRCUIT BLOCK >			
RB801	1-236-908-11	NETWORK RESISTOR (CHIP) 10K			
RB802	1-236-908-11	NETWORK RESISTOR (CHIP) 10K			
RB803	1-236-908-11	NETWORK RESISTOR (CHIP) 10K			
		< VIBRATOR >			
X1	1-781-174-21	VIBRATOR, CERAMIC 10MHz			
X2	1-795-008-11	VIBRATOR, CRYSTAL			

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	A-472-525-1A	DIO BOARD, COMPLETE *******************			
		< CAPACITOR >			
C400	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C401	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C402	1-126-933-11	ELECT	100uF	20.00%	16V
C403	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C404	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C405	1-126-933-11	ELECT	100uF	20.00%	16V
C406	1-126-933-11	ELECT	100uF	20.00%	16V
C407	1-126-933-11	ELECT	100uF	20.00%	16V
C408	1-126-933-11	ELECT	100uF	20.00%	16V
C409	1-136-165-00	MYLAR	0.1uF	5.00%	50V
C410	1-136-165-00	MYLAR	0.1uF	5.00%	50V
C411	1-136-165-00	MYLAR	0.1uF	5.00%	50V
C412	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C413	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C414	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C415	1-104-646-11	CERAMIC	2.2uF	20.00%	50V
C416	1-104-646-11	CERAMIC	2.2uF	20.00%	50V
C417	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C418	1-104-645-11	CERAMIC	1uF	20.00%	50V
C419	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C421	1-126-176-11	ELECT	220uF	20%	10V
C422	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C423	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C424	1-124-589-11	ELECT	47uF	20%	16V
		< IC >			
IC401	8-749-012-70	IC GP1F38R			
IC402	8-749-012-70	IC GP1F38R			
IC403	8-749-012-69	IC GP1F38T			
IC404	8-759-927-29	IC SN74HCU04ANS-E05			
IC405	8-759-926-17	IC SN74HC153ANS-E05			
IC406	8-759-927-29	IC SN74HCU04ANS-E05			
		< JACK >			
J400	1-784-432-11	JACK, PIN 1P (COAXIAL DIGITAL IN)			
J401	1-784-689-11	JACK, PIN 1P (COAXIAL DIGITAL OUT)			

DIO **FL**

Ref. No.	Part No.	Description			Remarks
		< COIL >			
L400	1-412-056-11	INDUCTOR CHIP	4.7uH		
L401	1-412-056-11	INDUCTOR CHIP	4.7uH		
L402	1-412-056-11	INDUCTOR CHIP	4.7uH		
L403	1-412-056-11	INDUCTOR CHIP	4.7uH		
L404	1-412-056-11	INDUCTOR CHIP	4.7uH		
L405	1-414-235-22	INDUCTOR CHIP	0uH		
		< RESISTOR >			
R400	1-216-025-11	RES-CHIP	100	5%	1/10W
R401	1-216-025-11	RES-CHIP	100	5%	1/10W
R402	1-216-025-11	RES-CHIP	100	5%	1/10W
R403	1-216-025-11	RES-CHIP	100	5%	1/10W
R404	1-216-025-11	RES-CHIP	100	5%	1/10W
R405	1-216-073-00	METAL CHIP	10K	5%	1/10W
R406	1-216-097-11	RES-CHIP	100K	5%	1/10W
R407	1-216-025-11	RES-CHIP	100	5%	1/10W
R408	1-216-073-00	METAL CHIP	10K	5%	1/10W
R409	1-216-121-11	RES-CHIP	1M	5%	1/10W
R410	1-216-025-11	RES-CHIP	100	5%	1/10W
R411	1-216-025-11	RES-CHIP	100	5%	1/10W
R412	1-216-025-11	RES-CHIP	100	5%	1/10W
R413	1-216-022-00	METAL CHIP	75	5%	1/10W
R414	1-216-033-00	METAL CHIP	220	5%	1/10W
R415	1-216-022-00	METAL CHIP	75	5%	1/10W
		< TRANSFORMER >			
T400	1-416-701-11	COIL (WITH CORE)			

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Ref. No.	Part No.	Description			Remarks
	A-4725-215-A	FL BOARD, COMPLETE (US/CND)			
		***************************			
	A-4725-241-A	FL BOARD, COMPLETE (AEP/UK)			
		***************************			
*	3-362-478-11	HOLDER (T), LED			
*	4-955-901-01	CUSHION (FL)			
*	4-996-686-11	HOLDER (FL)			
		< CAPACITOR >			
C701	1-124-589-11	ELECT	47uF	20%	16V
C707	1-162-290-31	CERAMIC	470PF	10%	50V
C708	1-162-290-31	CERAMIC	470PF	10%	50V
C709	1-164-159-11	CERAMIC	0.1uF		50V
C710	1-164-159-11	CERAMIC	0.1uF		50V
C711	1-124-261-00	ELECT	10uF	20%	50V
C712	1-124-261-00	ELECT	10uF	20%	50V
C715	1-162-294-31	CERAMIC	0.001uF	10%	50V
C716	1-162-294-31	CERAMIC	0.001uF	10%	50V
C717	1-164-159-11	CERAMIC	0.1uF		50V
C718	1-164-159-11	CERAMIC	0.1uF		50V
C719	1-162-213-31	CERAMIC	39PF	5.00%	50V
C720	1-162-294-31	CERAMIC	0.001uF	10%	50V
C721	1-162-282-31	CERAMIC	100PF	10%	50V
C722	1-162-282-31	CERAMIC	100PF	10%	50V
C723	1-162-282-31	CERAMIC	100PF	10%	50V
C724	1-164-159-11	CERAMIC	0.1uF		50V
C725	1-124-589-11	ELECT	47uF	20%	16V
C726	1-164-159-11	CERAMIC	0.1uF		50V

Ref. No.	Part No.	Description			Remarks	
		< CONNECTOR >				
CN701	1-778-318-11	CONNECTOR, BOARD TO BOARD 13P				
CN702	1-784-337-11	CONNECTOR (FFC) 25P				
		< DIODE >				
D701	8-719-046-38	DIODE SEL5821A-TH8F				
D702	8-719-303-02	DIODE SEL2510C-D-TP3				
D703	8-719-301-52	DIODE SEL2810A-D-TP3				
D704	8-719-301-39	DIODE SEL2210S-D-TP3				
		< FILTER >				
FL781	1-517-987-11	INDICATOR TUBE, FLUORESCENT				
		< IC >				
IC771	8-759-680-17	IC MSM9201-04GS-K				
		< TRANSISTOR >				
Q701	8-729-900-80	TRANSISTOR	UN4211-TA			
Q702	8-729-900-80	TRANSISTOR	UN4211-TA			
Q703	8-729-900-80	TRANSISTOR	UN4211-TA			
Q704	8-729-900-80	TRANSISTOR	UN4211-TA			
Q705	8-729-620-05	TRANSISTOR	2SC2603TP-EF			
Q706	8-729-620-05	TRANSISTOR	2SC2603TP-EF			
		< RESISTOR >				
R702	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R703	1-247-843-11	CARBON	3.3K	5%	1/4W	
R704	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R705	1-249-429-11	CARBON	10K	5%	1/4W	
R706	1-249-435-11	CARBON	33K	5%	1/4W	
R708	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R709	1-247-843-11	CARBON	3.3K	5%	1/4W	
R710	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R714	1-249-409-11	CARBON	220	5%	1/4W	F
R715	1-249-409-11	CARBON	220	5%	1/4W	F
R716	1-249-409-11	CARBON	220	5%	1/4W	F
R717	1-249-409-11	CARBON	220	5%	1/4W	F
R718	1-247-807-31	CARBON	100	5%	1/4W	
R719	1-247-807-31	CARBON	100	5%	1/4W	
R720	1-247-807-31	CARBON	100	5%	1/4W	
R721	1-249-441-11	CARBON	100K	5%	1/4W	
R722	1-247-807-31	CARBON	100	5%	1/4W	
R723	1-249-441-11	CARBON	100K	5%	1/4W	
R724	1-247-807-31	CARBON	100	5%	1/4W	
R725	1-247-843-11	CARBON	3.3K	5%	1/4W	
R726	1-247-807-31	CARBON	100	5%	1/4W	
R727	1-247-807-31	CARBON	100	5%	1/4W	
R728	1-247-807-31	CARBON	100	5%	1/4W	
R729	1-247-807-31	CARBON	100	5%	1/4W	
		< SWITCH >				
S701	1-762-875-21	SWITCH, KEYBOARD (● REC)				
S702	1-762-875-21	SWITCH, KEYBOARD (■)				
S703	1-762-875-21	SWITCH, KEYBOARD (▶▶)				
S704	1-762-875-21	SWITCH, KEYBOARD (◀◀)				
S705	1-762-875-21	SWITCH, KEYBOARD (❚❚)				

Ref. No.	Part No.	Description			Remarks
S706	1-762-875-21	SWITCH, KEYBOARD (►)			
S707	1-762-875-21	SWITCH, KEYBOARD (MENU/NO)			
S708	1-762-875-21	SWITCH, KEYBOARD (YES)			
S709	1-762-875-21	SWITCH, KEYBOARD (CLEAR)			
S710	1-762-875-21	SWITCH, KEYBOARD (OPEN/CLOSE)			
S711	1-476-100-11	ENCODER, ROTARY (AMS)			
S712	1-418-520-11	ENCODER, ROTARY (DIGITAL REC LEVEL)			

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Ref. No.	Part No.	Description			Remarks
	A-472-524-7A	HP BOARD, COMPLETE ******************			
		< CAPACITOR >			
C651	1-162-207-31	CERAMIC	22PF	5%	50V
C652	1-162-207-31	CERAMIC	22PF	5%	50V
C653	1-126-013-11	ELECT	1000uF	20.00%	16V
C654	1-126-023-11	ELECT	100uF	20.00%	25V
C655	1-162-294-31	CERAMIC	0.001uF	10%	50V
C656	1-162-294-31	CERAMIC	0.001uF	10%	50V
C657	1-164-159-11	CERAMIC	0.1uF		50V
C658	1-164-159-11	CERAMIC	0.1uF		50V
		< CONNECTOR >			
CN651	1-784-923-11	PIN, CONNECTOR 7P			
		< IC >			
IC651	8-759-634-51	IC M5218AP			
		< JACK >			
J651	1-770-307-11	JACK (LARGE TYPE)(PHONES)			
		< COIL >			
* L651	1-410-858-21	INDUCTOR	0uH		
		< TRANSISTOR >			
Q651	8-729-231-55	TRANSISTOR	2SC2878AB-TPE2		
Q652	8-729-231-55	TRANSISTOR	2SC2878AB-TPE2		
Q653	8-729-231-55	TRANSISTOR	2SC2878AB-TPE2		
Q654	8-729-231-55	TRANSISTOR	2SC2878AB-TPE2		
		< RESISTOR >			
R651	1-259-460-11	CARBON	22K	5%	1/6W
R652	1-259-460-11	CARBON	22K	5%	1/6W
R653	1-259-444-11	CARBON	4.7K	5%	1/6W
R654	1-259-458-11	CARBON	18K	5%	1/6W
R655	1-259-444-11	CARBON	4.7K	5%	1/6W
R656	1-259-458-11	CARBON	18K	5%	1/6W
R657	1-259-406-11	CARBON	120	5%	1/6W
R658	1-259-406-11	CARBON	120	5%	1/6W
R659	1-259-444-11	CARBON	4.7K	5%	1/6W
R660	1-259-444-11	CARBON	4.7K	5%	1/6W
R661	1-259-444-11	CARBON	4.7K	5%	1/6W
R662	1-259-444-11	CARBON	4.7K	5%	1/6W
R663	1-259-428-11	CARBON	1K	5%	1/6W
R664	1-259-428-11	CARBON	1K	5%	1/6W
R665	1-260-308-11	CARBON	22	5%	1/2W
R666	1-247-727-11	CARBON	10	5%	1/2W

Ref. No.	Part No.	Description			Remarks	
		< VARIABLE RESISTOR >				
RV651	1-225-492-11	RES, VAR, CARBON 20K/20K (PHONE LEVEL)				

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Ref. No.	Part No.	Description			Remarks	
*	1-669-049-11	MOTOR BOARD ************				
		< CAPACITOR >				
C10	1-164-159-11	CERAMIC	0.1uF		50V	
		< CONNECTOR >				
CN14	1-506-481-11	PIN, CONNECTOR 2P				

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Ref. No.	Part No.	Description			Remarks	
*	1-669-050-11	OUT SWITCH BOARD *****************				
* CN10	1-568-951-11	PIN, CONNECTOR 2P				
		< SWITCH >				
S10	1-571-300-21	SWITCH, ROTARY (PLAY POSOTION)				

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Ref. No.	Part No.	Description			Remarks	
	1-678-454-11	PJ BOARD ********				
		< CAPACITOR >				
C598	1-110-335-11	MYLAR	100PF	5.00%	50V	
C599	1-110-335-11	MYLAR	100PF	5.00%	50V	
		< JACK >				
PJ501	1-568-101-11	JACK, PIN 4P (LINE(ANALOG) IN/OUT)				
		< RESISTOR >				
R591	1-249-504-11	CARBON	10	5%	1/4W	
R592	1-249-504-11	CARBON	10	5%	1/4W	
R593	1-249-405-11	CARBON	100	5%	1/4W	F
R594	1-249-405-11	CARBON	100	5%	1/4W	F

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Ref. No.	Part No.	Description			Remarks	
	A-4725-245-A	POW BOARD, COMPLETE ********************				
		< BATTERY >				
BT201	1-528-887-11	BATTERY, LITHIUM SECONDARY				
		< CAPACITOR >				
C201	1-126-937-11	ELECT	4700uF	20.00%	16V	
C202	1-164-159-11	CERAMIC	0.1uF		50V	
C203	1-128-547-11	ELECT	6800uF	20.00%	16V	
C204	1-117-771-11	ELECT(BLOCK)	6800uF	20.00%	25V	
C205	1-117-771-11	ELECT(BLOCK)	6800uF	20.00%	25V	
C206	1-164-159-11	CERAMIC	0.1uF		50V	
C213	1-136-153-00	FILM	0.01uF	5%	50V	
C214	1-136-153-00	FILM	0.01uF	5%	50V	
C218	1-164-159-11	CERAMIC	0.1uF		50V	
C231	1-126-234-11	ELECT	2200uF	20.00%	16V	

POW POSITION SWITCH

Ref. No.	Part No.	Description			Remarks	
C232	1-124-689-11	ELECT	1000uF	20.00%	16V	
C233	1-164-732-11	CERAMIC	0.1uF	20.00%	50V	
C234	1-164-732-11	CERAMIC	0.1uF	20.00%	50V	
C235	1-164-732-11	CERAMIC	0.1uF	20.00%	50V	
C236	1-164-732-11	CERAMIC	0.1uF	20.00%	50V	
C241	1-104-663-11	ELECT	33uF	20.00%	25V	
C242	1-126-963-11	ELECT	4.7uF	20.00%	50V	
C243	1-126-961-11	ELECT	2.2uF	20.00%	50V	
C244	1-164-159-11	CERAMIC	0.1uF		50V	
C245	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C247	1-164-159-11	CERAMIC	0.1uF		50V	
C248	1-164-159-11	CERAMIC	0.1uF		50V	
C249	1-126-925-11	ELECT	470uF	20.00%	10V	
C250	1-126-925-11	ELECT	470uF	20.00%	10V	
C251	1-126-965-11	ELECT	22uF	20.00%	50V	
C252	1-164-159-11	CERAMIC	0.1uF		50V	
C253	1-126-933-11	ELECT	100uF	20.00%	16V	
C254	1-162-306-11	CERAMIC	0.01uF	30.00%	16V	
C255	1-162-306-11	CERAMIC	0.01uF	30.00%	16V	
C258	1-104-665-11	ELECT	100uF	20.00%	10V	
C261	1-164-159-11	CERAMIC	0.1uF		50V	
C262	1-164-159-11	CERAMIC	0.1uF		50V	
C263	1-126-926-11	ELECT	1000uF	20.00%	10V	
C264	1-164-159-11	CERAMIC	0.1uF		50V	
C271	1-164-159-11	CERAMIC	0.1uF		50V	
C272	1-164-159-11	CERAMIC	0.1uF		50V	
C273	1-128-564-21	ELECT	220uF	20.00%	100V	
C274	1-128-560-11	ELECT	22uF	20.00%	100V	
C275	1-128-582-11	ELECT	10uF	20.00%	100V	
C276	1-162-306-11	CERAMIC	0.01uF	30.00%	16V	
C283	1-104-664-11	ELECT	47uF	20.00%	25V	
C284	1-164-159-11	CERAMIC	0.1uF		50V	
		< CONNECTOR >				
CN201	1-779-291-11	CONNECTOR,FFC(LIF(NON-ZIF)) 23P				
* CN202	1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P				
CN205	1-691-767-11	PLUG (MICRO CONNECTOR) 5P				
CN207	1-691-773-11	PLUG (MICRO CONNECTOR) 11P				
CN208	1-779-281-11	CONNECTOR,FFC(LIF(NON-ZIF)) 13P				
CN209	1-568-683-11	PIN, CONNECTOR (PC BAORD) 2P				
		< DIODE >				
D201	8-719-200-77	DIODE 10E2N-TA2B				
D202	8-719-200-77	DIODE 10E2N-TA2B				
D203	8-719-200-77	DIODE 10E2N-TA2B				
D204	8-719-200-77	DIODE 10E2N-TA2B				
D205	8-719-911-55	DIODE 10DF2-TA2				
D206	8-719-911-55	DIODE 10DF2-TA2				
D207	8-719-911-55	DIODE 10DF2-TA2				
D208	8-719-911-55	DIODE 10DF2-TA2				
D211	8-719-911-19	DIODE 1SS133T-72				
D212	8-719-983-62	DIODE MTZJ-T-72-3.3A				
D231	8-719-210-21	DIODE 11EQS04-TA2B				
D232	8-719-210-21	DIODE 11EQS04-TA2B				
D241	8-719-911-19	DIODE 1SS133T-72				
D242	8-719-210-21	DIODE 11EQS04-TA2B				
D243	8-719-210-21	DIODE 11EQS04-TA2B				
D251	8-719-933-39	DIODE HZS6C1LTA				
D261	8-719-210-21	DIODE 11EQS04-TA2B				
D271	8-719-070-53	DIODE 11E4-TA1B2				
D272	8-719-070-53	DIODE 11E4-TA1B2				
D273	8-719-070-53	DIODE 11E4-TA1B2				
D274	8-719-070-53	DIODE 11E4-TA1B2				
D275	8-719-934-30	DIODE HZS36-2LTA				
D277	8-719-933-36	DIODE HZS6B1LTA				
		< GROUND >				
* EP200	4-870-539-00	PLATE, GROUND				
* EP201	4-870-539-00	PLATE, GROUND				
		< IC >				
IC230	8-759-605-00	IC M5F78M07L				
IC231	8-759-604-95	IC M5F79M07L				
IC250	8-759-822-09	IC LB1641				
IC260	8-759-604-35	IC M5F78M05L				
IC280	8-759-678-77	IC LA5643				
		< IC LINK >				
⚠ICP201	1-532-845-21	LINK, IC				
⚠ICP202	1-532-845-21	LINK, IC				
		< TRANSISTOR >				
Q202	8-729-902-80	TRANSISTOR	UN4114-TA			
Q251	8-729-119-76	TRANSISTOR	2SA1115TP-EF			
Q252	8-729-900-80	TRANSISTOR	UN4211-TA			
Q271	8-729-141-58	TRANSISTOR	2SC2275A-P			
		< RESISTOR >				
R203	1-247-807-31	CARBON	100	5%	1/4W	
R204	1-249-429-11	CARBON	10K	5%	1/4W	
R241	1-249-429-11	CARBON	10K	5%	1/4W	
R242	1-249-413-11	CARBON	470	5%	1/4W	F
R243	1-249-415-11	CARBON	680	5%	1/4W	F
R244	1-249-429-11	CARBON	10K	5%	1/4W	
R245	1-249-409-11	CARBON	220	5%	1/4W	F
R251	1-249-417-11	CARBON	1K	5%	1/4W	F
R252	1-249-433-11	CARBON	22K	5%	1/4W	
R253	1-249-429-11	CARBON	10K	5%	1/4W	
R254	1-249-429-11	CARBON	10K	5%	1/4W	
R271	1-260-108-11	CARBON	5.6K	5%	1/2W	
R276	1-249-441-11	CARBON	100K	5%	1/4W	
R277	1-247-807-31	CARBON	100	5%	1/4W	
R281	1-249-417-11	CARBON	1K	5%	1/4W	F

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*		1-669-051-11	POSITION SWITCH BOARD *********************
			< CONNECTOR >
	CN12	1-564-723-11	PIN, CONNECTOR (SMALL TYPE) 7P

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Ref. No.	Part No.	Description			Remarks
		< SWITCH >			
S11	1-771-264-11	SWITCH, PUSH(DETECTION)(1 KEY) (CHUCKING IN)			
S12	1-771-264-11	SWITCH, PUSH(DETECTION)(1 KEY) (PACK OUT)			
S13	1-771-264-11	SWITCH, PUSH(DETECTION)(1 KEY) (REC POSITION)			

****

Ref. No.	Part No.	Description			Remarks
	1-678-456-11	PSW BOARD **********			
		< CAPACITOR >			
C756	1-124-589-11	ELECT	47uF	20%	16V
C757	1-164-159-11	CERAMIC	0.1uF		50V
		< CONNECTOR >			
CN751	1-778-317-11	CONNECTOR, BOARD TO BOARD 13P			
		< DIODE >			
D751	8-719-046-46	DIODE SEL5221S-TH8F			
		< IC >			
IC751	8-749-013-92	IC GP1UC7X			
		< TRANSISTOR >			
Q751	8-729-900-80	TRANSISTOR	UN4211-TA		
Q752	8-729-900-80	TRANSISTOR	UN4211-TA		
Q753	8-729-900-80	TRANSISTOR	UN4211-TA		
		< RESISTOR >			
R752	1-249-421-11	CARBON	2.2K	5%	1/4W F
R753	1-247-843-11	CARBON	3.3K	5%	1/4W
R754	1-249-425-11	CARBON	4.7K	5%	1/4W F
R755	1-249-429-11	CARBON	10K	5%	1/4W
R756	1-249-435-11	CARBON	33K	5%	1/4W
R758	1-249-421-11	CARBON	2.2K	5%	1/4W F
R759	1-247-843-11	CARBON	3.3K	5%	1/4W
R760	1-249-425-11	CARBON	4.7K	5%	1/4W F
R762	1-249-426-11	CARBON	5.6K	5%	1/4W
R763	1-249-425-11	CARBON	4.7K	5%	1/4W F
R764	1-249-429-11	CARBON	10K	5%	1/4W
R765	1-249-435-11	CARBON	33K	5%	1/4W
R767	1-249-426-11	CARBON	5.6K	5%	1/4W
R768	1-249-425-11	CARBON	4.7K	5%	1/4W F
R769	1-249-429-11	CARBON	10K	5%	1/4W
R770	1-249-435-11	CARBON	33K	5%	1/4W
R771	1-249-403-11	CARBON	68	5%	1/4W F
R772	1-249-404-00	CARBON	82	5%	1/4W F
R773	1-249-409-11	CARBON	220	5%	1/4W F
R774	1-249-429-11	CARBON	10K	5%	1/4W
R775	1-249-429-11	CARBON	10K	5%	1/4W
R776	1-249-401-11	CARBON	47	5%	1/4W F
R777	1-247-807-31	CARBON	100	5%	1/4W
R778	1-247-807-31	CARBON	100	5%	1/4W
R779	1-247-807-31	CARBON	100	5%	1/4W
R780	1-247-807-31	CARBON	100	5%	1/4W
		< SWITCH >			
S751	1-762-875-21	SWITCH, KEYBOARD (PLAY MODE)			
S752	1-762-875-21	SWITCH, KEYBOARD (REPEAT)			
S753	1-762-875-21	SWITCH, KEYBOARD (DISPLAY/CHAR)			
S754	1-762-875-21	SWITCH, KEYBOARD (I/⏻)			
S755	1-762-875-21	SWITCH, KEYBOARD (TIME)			
S756	1-570-101-61	SWITCH, KEY BOARD (S.F EDIT)			
S757	1-570-101-51	SWITCH, KEY BOARD (FILTER)			
S758	1-771-171-11	SWITCH, ROTARY (INPUT)			
S759	1-771-171-11	SWITCH, ROTARY (REC MODE)			
S760	1-786-027-11	SWITCH, SLIDE (TIMER)			

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Ref. No.	Part No.	Description			Remarks
	1-678-450-11	REC BOARD *********			
		< GROUND >			
EP302	1-537-771-21	TERMINAL BOARD, GROUND			
		< CONNECTOR >			
CN351	1-691-770-11	PLUG (MICRO CONNECTOR) 8P			
		< RESISTOR >			
R351	1-216-081-00	METAL CHIP	22K	5%	1/10W
R352	1-216-081-00	METAL CHIP	22K	5%	1/10W
		< VARIABLE RESISTOR >			
RV351	1-227-226-11	RES, VAR 20K/20K (ANALOG REC LEVEL)			

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Ref. No.	Part No.	Description	Remarks
		MISCELLANEOUS **************	
68	1-792-853-11	WIRE(FLAT TYPE) (25 CORE)	
110	1-791-167-11	WIRE (FLAT TYPE)	
112	1-792-854-11	WIRE (FLAT TYPE) (21 CORE)	
116	1-792-852-11	WIRE (FLAT TYPE) (23 CORE)	
119	1-790-202-11	WIRE (FLAT TYPE) (23 CORE)	
120	1-791-168-11	WIRE (FLAT TYPE)	
⚠121	1-558-568-21	CORD, POWER (AEP)	
⚠121	1-696-586-11	CORD, POWER (UK)	
⚠121	1-790-154-31	CORD, POWER (US/CND)	
251	1-667-954-11	PC BOARD, FLEXIBLE	
⚠259	A-4672-541-A	OPTICAL PICK-UP KMS-260A/J1N	
HR901	1-500-565-11	HEAD, OVER LIGHT	
M10	X-4949-791-1	MOTOR (LOADING) ASSY	
S101	1-762-148-21	SWITCH, PUSH (2 KEY)(REFLECT/PROTECTDET)	
⚠T801	1-435-605-11	TRANSFORMER, POWER (AEP/UK)	
⚠T801	1-435-606-11	TRANSFORMER, POWER (US/CND)	

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ACCESSORIES & PACKING MATERIALS
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Ref. No.	Part No.	Description	Remarks
	1-476-102-11	REMOTE COMMANDER (RM-D51M)	
	1-590-925-31	CORD,CONNECTION	
	1-777-172-11	CORD,CONNECTION (CND)	
	4-229-130-11	MANUAL, INSTRUCTION (ENGLISH/FRENCH)	
	4-229-130-21	MANUAL, INSTRUCTION (GERMAN/SPANISH/ITALIAN)(AEP)	
	4-229-130-31	MANUAL, INSTRUCTION (DUTCH/SWEDISH/PORUTUGUESE)(AEP)	
	4-983-537-01	COVER,BATTERY(FOR RM-D51M)	

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HARDWARE LIST
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Ref. No.	Part No.	Description	Remarks
#1	7-685-885-09	SCREW +BVTT 4X16 (S)	
#2	7-685-880-09	SCREW +BVTT 4X6 (S)	
#3	7-685-871-01	SCREW +BVTT 3X6 (S)	
#4	7-685-103-19	SCREW +P 2X5 TYPE2 NON-SLIT	
#5	7-685-133-19	SCREW (DIA. 2.6) (IT3B)	
#6	7-621-772-00	SCREW +B 2X3	
#7	7-621-772-20	SCREW +B 2X5	
#8	7-621-772-40	SCREW +B 2X8	
#9	7-685-850-04	SCREW +BVTT 2X3 (S)	
#10	7-685-873-09	SCREW +BVTT 3X10 (S)	
#11	7-685-548-19	SCREW +BTP 3X12 TYPE2 N-S	

Sony Corporation
Audio Entertainment Group

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